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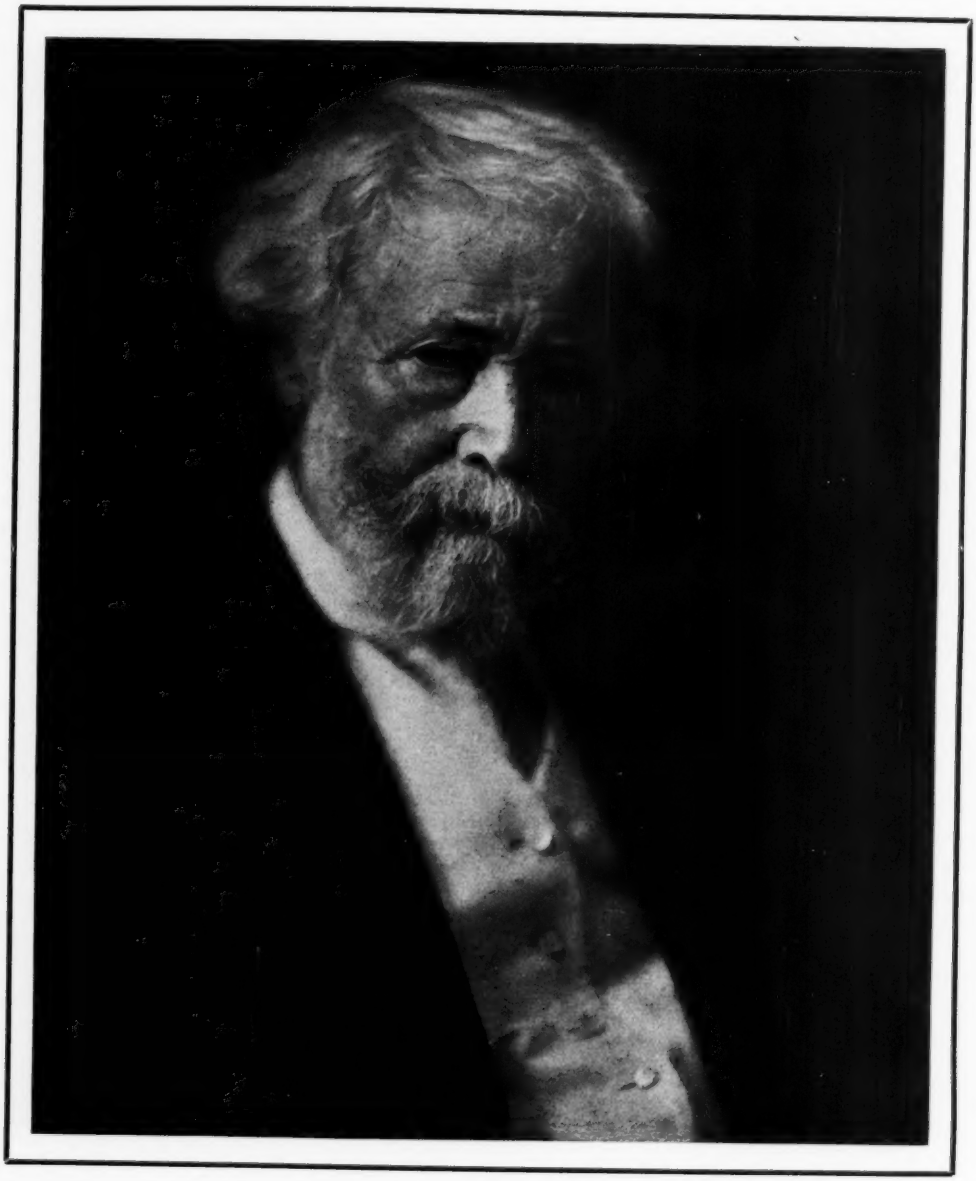

JOHN J. ENNEKING
JOHN H. GARO

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PHOTO-ERA

The American Journal of Photography

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Vol. XXXVIII JANUARY, 1917 No. 1

Opening a Studio in the City

J. CLYDE WILSON

WHEN a man has failed in everything else he opens a store. There is a popular notion that any one can run a store. "Why, all that is necessary," runs the fallacy, "is to get in a stock of goods and wait." It is much the same with photography. Every photographer you ever met, engaged in the work as a profession, expected at some time or other to open a studio. For all that is necessary to run a studio, you know, is an acquaintance with photographic technique. If you can make a negative, and a print from it, why, ha! you can run a studio. And so each year there are 20,000 recorded business-failures, and perhaps as many more unrecorded, among which there are, of course, dozens of studios.

Why is this? Who can answer? There is, of course, a variety of reasons, but the chief one, perhaps, is unfamiliarity with retailing-conditions — a failure to understand the peculiar whims of the buying-public. As part of that public we do not buy everything we see, nor do we even see everything that we might buy. The location of a studio is highly important, as is the location of every retail establishment which serves the public directly. If we are going to make people want pictures we must keep pictures constantly before them — bring our wares to their attention, so that we may awaken sooner or later a desire for them. So at the very outset the photographer ought to be careful where he opens his studio. Cheap rents near busy streets but away from them have a sinister influence over us. It is easy to reason out that $60 saved here will go a long way on our other expenses and bring our profit nearer. Sometimes it will, but the curtailed advertising-opportunity, the slowness with which business builds without its help and the discouragement which is likely to overtake one may lead to speedy failure. One ought to look into this matter carefully before making a decision.

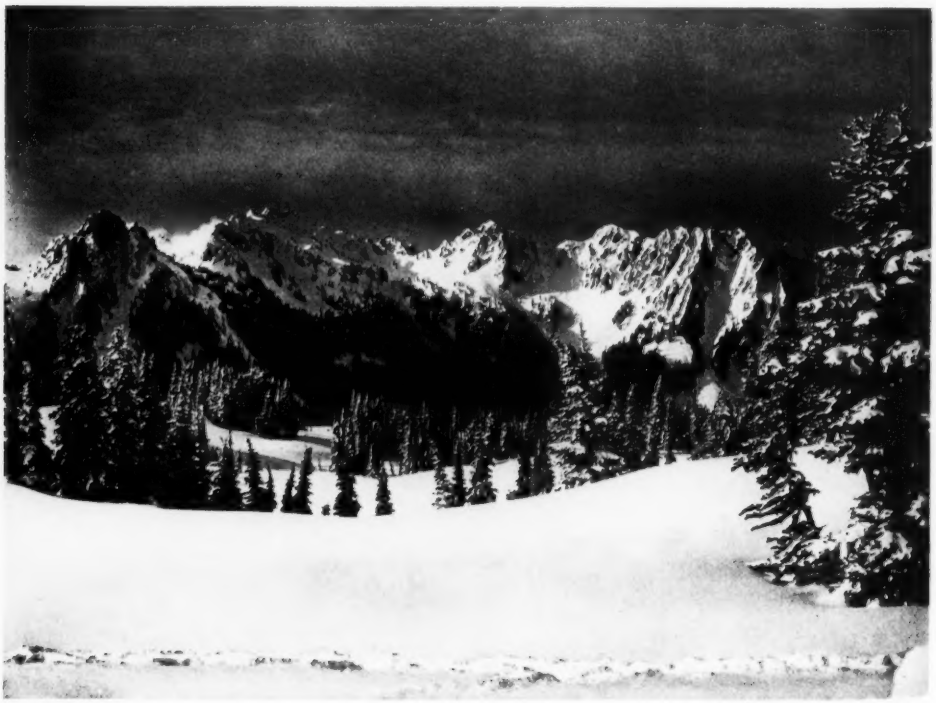
Sometimes rents in busy sections are too high. At least, they are too high for photographic purposes, for the advantages may not merit the price asked. Some businesses which repeat sales oftener than do photographs can stand these high rents and prosper where a studio could not. Again, an old and well-known studio might be able to engage elaborately laid out quarters in such a location and not mind the burden, while an equally good but unknown place would go down under the burden before the public had really discovered it. This mistake is often made by the inexperienced, who assume that if a certain location is profitable to one place it will be to another, the work being of like quality. Some of the business of older studios must surely divert to it. But that does not follow by any means, for as human beings we do not act strictly without bias. The old studio has won us by some effort, by its individuality perhaps, by its reputation in the community or by some previous successful performance. Even if the new studio is seen, and judgment acknowledges its work the equal of the older place, still, the older possesses the advantages named in helping it retain the business, and the new studio whose work is admired is not favored with our patronage. It is well to think of these things when locating near a competitor.

With little capital on hand, and none to waste, the high rents down town will perhaps scare us, and it may be just as well if they do. One of the commonest causes of failure is insufficient capital, and the amount that makes sufficient capital is always relative. It depends not only upon the total expense but even more upon the gross income. But in any new business this is likely to be beneath the expectations, so it is just as well to start modestly to enable one to meet the very worst conditions and not be wiped out in a single blow. To such the small outlying city-studio will prove alluring. Not much of an investment will be required, although it is likely

to be all or more than one expected to spend, for business never comes at the outset in an avalanche. To have the place and be ready for business does not bring the public scrambling to one's doors. Far from it. We get your modest circular or announcement, glance over it and toss it into the waste-basket. Perhaps the housewife is sweeping when it comes, tears it open during a brief rest and glances at it. "What is it?" asks her helper. "Oh, just some old ad," she announces, "a photographic studio over on Jefferson Street."

"Is that all?" replies the disappointed assistant, hoping for a pleasant invitation out; and your carefully studied announcement, which you had worked over so hopefully and lovingly, perhaps, goes into the dust-pan and to a quick oblivion. We invariably overestimate the impression our establishment and our advertising make upon the public. Because we are so near to our venture, thinking of it constantly, in our waking hours and in our dreams, we become sort of hypnotized by it, and it assumes an importance which, viewed disinterestedly, we would see it did not merit.

Persistence, however, will have its effect; and let it be said here that the best kind of advertising is word of mouth. "We are advertised by our loving friends" is the slogan of a well-known manufacturer, but he has no monopoly upon that kind of advertising, for most small businesses are so advertised. This being so, it devolves upon the studio to begin the process of making friends at the earliest possible moment. To make friends is to make customers; but merely serving patrons' demands, on the other hand, is not making friends. Friendship begins in courtesy, and, simple as it may seem, it demands something of a talent; for, carried to the ultimate measure in which I am considering it here, it is one expression of personality. It seems to me that the most successful small businesses are built about a personality. To be a good photographer is only one requirement of success; equally important is a talent for impressing one's self favorably upon a community. To be somebody in a community is sure to attract business. So-called personality is magnetic, in a sense. The man with personality holds his head



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WINTER AMONG THE CASCADE MOUNTAINS — A. H. BARNES

"WINDSWEPT" H. A. MORTON

up and attacks his problems with sureness and knowledge which win admiration. This is not a mere fancy; it is a fact of which we have only too frequent demonstration. One reason for this is that the man of personality does not fear his fellows, and he always respects them. Like begets like. If he takes his business seriously, feels that he has something of a mission in his neighborhood, his opportunities to serve his neighbors will accumulate rapidly, and that is what we call building a business. If he thinks so little of his business as to locate on a top floor in an outlying section in which rents are not high, with only a small showcase in an areaway, he is likely to be a loser at the very outset. Why? Two doors away, perhaps, there is a little Greek confectioner. He may not speak fluently, may not have a very elaborate stock or much to back him up; but he is pleasant and neat and serves the passerby as best he can. When the passerby sees the little showcase in the areaway advertising the photographer, his only conclusion can be, when he compares it with the Greek establishment two doors away, that the photographer does not make enough, or has not enough confidence in his business, to pay the little extra rent the Greek was able to raise to be on the ground-floor. Oh, yes, the public notices all these things. It may not give conscious thought to them, but, just the same, the subconscious mind grasps the idea, and it forms an estimate of that photographer which is not just what it should be.

An outlying city studio nowadays can easily be on the ground-floor, for artificial light makes good portraits possible without a skylight, and as business develops, and one's funds grow, the photographer can readily get a skylight put in by having the store extended in the rear (they seldom cover the whole lot). With a large attractive display-window in front, which should be kept filled with his best and changed frequently, his work is kept in the public eye, for we will stop to look in a window when we would barely glance at a showcase. Moreover, on the ground-floor one is on the same level with the other merchants, both literally and figuratively, and has not been squeezed off the line into smaller parlor quarters upstairs. It is taken for granted that he thinks somewhat seriously of his enterprise and that he means to make himself a necessity in the community. So even so small a matter as this exercises an influence for or against one in a psychological way with the public. No opportunity like this ought to be overlooked.

But merely having a good location, being able to do good work and having a good intention will not suffice to build a good business nowadays. Success demands selling-effort, and here is where

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most businesses fail. When the place is opened, the proprietor sits down and WAITS — waits for something to turn up! Not only does such a course curtail one's immediate returns, but it also delays the date of ultimate success, for it overlooks an advertising-opportunity. The more people a photographer can come in contact with the better for him. If one must sit down, then, let it be only to study the situation and plan the course to follow; to find out in how many ways one can serve the community as its photographer; to set down with a pen every single possibility which is open. And such a list embraces both possibilities and means, and it might read as follows:

1. I can make portraits of persons who visit the studio.
2. I can keep several portfolios circulating in the neighborhood, bringing to the people the many ways I can serve them, by featuring examples of portraits in studio and home, exteriors, garden-views, interiors, copies of old prints, children at play, the old folks at home, graves, parties by flash, banquets, picnics, reunions, class-gatherings, etc.
3. I can call upon the advertising-managers of the factories in this section and find out if they do or could use photographs, and keep after them until they do.
4. I can call upon the managers of motion-picture theaters and offer to make frequent contributions, of lantern-slides of local interest, to the entertainment in return for a little advertising between films.
5. I can get up a line of postcards of local views, mount them on an appropriately lettered card and have them displayed and offered for sale by local confectioners and druggists. Though the profit may be nothing, the advertising will help.
6. I can attend the track-meets, ball-games and football-matches of the neighborhood high school, take pictures of these games and display them for sale. My presence at the games will soon make me a familiar figure to all of the students, and ought soon to bring me class-groups and much of the school-business.
7. I will get the neighborhood "celebrities," the alderman, for instance, or the favorite collie of the children, or the President of the Business Men's Association to sit for me. The alderman is a good booster, and because he sometimes needs a boost himself he acts. He can send me many sittings, and very likely would if favored.
8. I will get the fire-laddies to pose in front of their hook and ladder, and give them each one of the pictures. That will be pretty sure to bring in a few sittings and make many friends. The same is true of the policemen.
9. I will get in touch with all of the lodges and societies meeting in the community, and get around some night to each for a flashlight.
10. I will be sure to attend all of the church-picnics and banquets.
11. I will photograph accidents, fires and all doings in the neighborhood likely to be of interest, and post a print of them in my window at the earliest possible moment after the happening.
12. I will make arrangements with all the druggists I can to handle their amateur photo-finishing, and furnish them a card of samples stating my studio does the druggists' work and does it well.
13. I will make any kind of picture asked for, whether postcard or 40 x 60 enlargement. I will turn nothing away.
14. I will do picture-framing, carry a small gift-line, sell art-reproductions, painted china, anything to bring more people in that is not incompatible with my main line, and will not assume an undue measure of importance beside it.
15. I will photograph the sight-seeing car if it passes my place, and get out prints on its return.

The photographer who will do these things will become a familiar figure in the community in a short time, and if in his various activities he keeps enough help to do things without worry, and well, not much business in his community will slip by him. This is one advantage of a large acquaintance, and it is one of the definite possibilities of a neighborhood or small-town business that is harder to get if one is located in a congested community in a hidden upper-floor studio.

RHYTHM is allied to repetition, but is not identical with it, being broader in its application, and consisting of a recurring line or value, or series of such, with perhaps a definite accent. Both rhythm and repetition are more useful in formal art than in landscape, but have an application in the latter, rhythm often being exemplified in the structure of clouds, especially those of the cumulous variety. In general, though, landscape-work is more concerned with variety than with rhythm. — PAUL LEWIS ANDERSON, in "PICTORIAL LANDSCAPE-PHOTOGRAPHY."

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CHARLES WELLINGTON FURLONG, F.R.G.S.
JOHN H. GARO

Photography and the Nude

THIS is a ripe, if somewhat thorny, topic, which from quite the early days of camera picture-work has yielded recurrent outbursts of enthusiasm on the one hand and severe censure on the other. A short time ago the subject was revived by some correspondence in the columns of this journal. Possibly this fact may be a contributing factor to the recent revival of attention to this class of work, as evidenced by the noticeable increase in number of the examples figuring on the walls of the present Salon. It is also safe to say that these are only a small proportion of those submitted to the committee for selection.

Taken as a whole, the nude factor in the present show reflects no little credit on the selecting committee in a twofold manner; viz., catholicity of subject and restrained taste in treatment. It is, however, to be hoped that this wave of subject will not in this case produce a corresponding wave of imitation among camera-folk generally, such as on frequent former occasions produced the vogue of the mud flat, birch and bracken, figure at the window or open door, etc.

In these previous occasions a shower of mud-flat prints did no one any harm, if it did good to no one — except perhaps the plate- and paper-makers; but indiscriminate camera-work with nude figures might, and very probably would, earn for photographers at large an undesirable reputation. The fact is, the successful pictorial treatment of the nude figure by drawing, painting or photography calls for several qualities which, in most workers with the camera, are not infrequently absent, and their absence assuredly spells failure.

In the first place, we must have a very high order of technical ability, not merely as regards the making of what is commonly called "a technically perfect negative," so far as exposure and development are concerned, but as regards the further matter of lighting, tone rendering, form in composition, i.e., craft generally, and, what is far more important, a perfectly healthy taste.

First of all, one must get entirely rid of the vulgar error of thinking that the nude is necessarily always beautiful. It can be beautiful only through treatment. This does not mean that an artist can make the ugly beautiful, but that a beautiful result can come only with beauty of treatment. In the Greek sculpture of the best period the figures treated are beautiful in proportion and form, and dealt with by unerring taste and skill. As Ruskin points out, it is better to be right-minded than well-informed. It is very doubtful whether the Greek artists made any study of anatomy, as we understand the term; but in the gymnasia they had before them an unlimited supply of subject for continuous observation. It is interesting to remember that the Greeks used the same word for the beautiful and the good; i.e., noble. Whence we have the root of the idea that art which appeals to the lower part of nature is bad art. This gives us one of our foundation-stones in the treatment of the nude. Work which in any degree suggests sensuality carries thereby its own condemnation.

We commonly apply the terms good or bad taste to matters of general conduct. In some, good taste is intuition; in others, it is chiefly a matter of instruction or rules, etc. Good taste is essential in good art-work. He to whom it is innate is not likely to offend in dealing with the nude, be he prince or ploughman. . . . . .

One not uncommon mistake is the failure to discriminate between the nude and the naked. The latter word and idea is associated with clothing. Hence the partly draped figure is far more likely to suggest the naked rather than the nude. Strange as it may seem, the complete nude *may* easily appear far more modest than the partly draped figure. We forget who it was who said that Venus with a stocking on could not possibly look modest, or words to that effect. The idea is quite sound. Any suggestion of clothing on the partly nude — or near the complete nude — figure is extremely apt to suggest the naked. Another danger to be avoided is that of arranging the figure to be looking directly at the spectator, i.e., camera. Again, the nude should not suggest individuality. For this reason any sharp delineation of the face is to be avoided. Thus we very often notice the best results arrange for the face to be in shade or shadow.

It is interesting also to observe that the skilful and observant worker by the aid of the nude figure can often suggest movement in a very striking manner. But whether violent movement or strong emotion be quite suitable for nude treatment is a question many times previously and hotly discussed in connection with classic sculpture — a form of art, by the way, that can offer many valuable lessons to the photographer of the nude. Indeed, there are some critics who hold that sculpture is the one and only art which can deal satisfactorily with the nude figure. One reason is that sculpture is necessarily largely conventional and decorative in general quality.—*The Amateur Photographer.*

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The Adaptability of the Eye to the Illumination

WITHIN the past few years, very considerable headway has been made in the science of illumination, and much interesting information has recently been obtained at the Research Laboratory of the Eastman Kodak Company, upon the sensibility of the eye to various degrees of brightness and contrast in the field of vision. For its measurement and classification, novel pieces of apparatus have been designed and made.

Illumination and photography are related in that they both depend on the laws of retinal reaction — the sensitiveness of the eye to light. And knowledge of the laws which govern the action of light on the eye must be of vital interest to the photographer.

Good lighting is that which produces good seeing, and the standard of good seeing is the ability to see detail with comfort and efficiency. Good photography is the proper illumination and exposure of a subject so that it may be reproduced with detail in highlight and shadow, with bright or dark surroundings comparatively subordinated, and a gradation from highlights to shadows, so that a round object will be given the appearance of roundness on a flat surface.

Good seeing is the degree of sharpness by which we observe contrasts and definition in detail, with an amount of light that produces neither strain not fatigue. It is governed by the amount of light that reaches the eye. This, in turn, has to do with intensity, distribution and color, depending upon the brightness and contrast in the object, which is determined by its illumination and reflecting-power, and also depending upon the intensity or brightness and position of the light-sources. The indirect lighting-system, now so much in vogue, may be instanced as an aid to good seeing.

The eye is just like a camera in that it has a lens, it has a sensitive surface and it has a box between the sensitive surface and the eye, which encloses the sensitive material. The camera, however, differs from the eye in that a camera exposes its film for a limited time. If the subject is dark, the exposure is long; and if it is light, the exposure is short. The eye has to be exposed all the while to the brightness of the scene that is being recorded. The sensitive material, in both the camera and the eye, is necessarily destroyed by exposure; otherwise we should never know what was happening at all, as no image would be produced. In the camera, it is destroyed or altered once for all, and the exposure has to be calculated so that the necessary amount of alteration is produced. In the eye the sensitive material is created by the body as it is destroyed, and the amount of the sensitive material or the sensitiveness of the eye is adjusted according to the brightness of the light outside. It is as if in the camera, instead of giving a variable exposure, a fixed exposure were given, and the sensitiveness of the material were altered according to the light.

The eye adjusts itself in the range of 1,000,000 to 1, and may be divided roughly into four levels of brightness, see page 10, (1) the brightest — bright sunlight on a white surface; (2) the indoor average of illumination during the day, which is only $\frac{1}{100}$ of the brightness of bright sunlight outside; (3) the average artificial illumination indoors at night, which is $\frac{1}{100}$ of that indoors in the system; (4) the level illumination at night outside, which is $\frac{1}{100}$ of that indoors at night.

We thus see that out of doors at night it is roughly one million times less bright than out of doors in bright sunlight. If we could imagine a pair of scales that would weigh anything from a ton of hay to a marble with equally high precision, and would swing perceptibly to the weight of a fly's leg, we would get an idea of the range over which the eye operates.

The brightness of objects, seen by the eye, depends upon its sensibility. We speak, therefore, of lighting in terms of comparative brightness or conditions of light. The actual brightness of an object is relative to the brightness it produces. An illuminated headlight makes a feeble flicker at midday compared to its brilliancy at midnight.

In order that the eye may adjust its sensibility, there elapses a certain amount of time after the change in the brightness level of the objects around, so that the eye has to take a certain amount of time to adapt itself. The iris diaphragm shuts and opens almost instantaneously to make a protection while the retina is adjusting its sensitiveness. In adapting itself to a small change it acts quickly; but when going from bright sunlight to darkness, it requires about half an hour to adapt itself almost completely. Total sensibility, however, is not reached until the end of an hour or so more. Where the contrast is less severe, as in passing from a room brightly lighted by artificial illumination to a darkroom, the time of adaptation is considerably less — about five or ten minutes. The sensitiveness of the eye, when coming from darkness into sunlight, decreases for about an hour. It is found,

experimentally, that the retina takes longer to grow in sensitiveness than it does to lose sensitiveness, so that if a light varies rapidly from bright to dark, the eye loses sensitiveness as the light becomes brighter, and does not recover so much as the light becomes darker, so that you get a diminishing sensitiveness when there are alternate bright and dark periods, as when passing along a street, at night, lighted by street-lights.

In viewing or focusing interiors, the best results will be obtained if the eye is stopped down from the highlights through the halftones to the dense shadows, giving it an opportunity to accommodate itself to the steep drop in intensity between the extremes. It will perform its work more quickly and with less fatigue than if the change were made directly from the highest to the lowest — the detail will appear more quickly and the eye will be sufficiently accommodated to work at maximum efficiency.

Bright Sunlight Out of Doors	Interiors in Daylight	Interiors at night artificial light	Out of Doors at night
1000	10	1/10	1/100

Lighting-contrasts vary considerably in living-rooms, work-rooms and offices; but the sensibility of the eye to contrast has a wide working latitude, and, if exacting work is not being done, the general brightness may vary from one to a hundred degrees without discomfort. Where the work demands close attention, the best possible adjustment of light should be made — one that is equal to good interior daylight-lighting must be maintained or created by artificial illumination.

The retina resembles the photographic material in another respect in that it can render only a certain limited range of contrasts, and if the contrast is too great for the eye to be able to bear it, discomfort is produced. In the same way a glare-spot, which is an area of excessive brightness, makes the eye very insensitive to other objects, which is very important in darkroom-lighting. On entering a darkroom, we "get our eyes" much more quickly when we try to pick out objects than if we merely close the eyes — a common practice. If, instead of stepping immediately from a bright illumination into a darkened room, closet, stairway, motion-picture house, etc., a pause of only a few seconds were made, the eye would adjust itself sufficiently so that we could proceed without stumbling or bumping into objects.

Contrasts are due almost entirely to two causes: differences in reflecting-power and depth of shadow. Shadows will also tend to depress the sensibility of the eye. Excessive contrasts should be avoided for the reason that the eye has not been sufficiently developed to accommodate itself to them. The contrasts out of doors seldom exceed 20 to 1 in ratio of brightness.

Where contrasts must exist, as they do in darkrooms, every endeavor should be made to reduce the ratio of contrast to the lowest figure. This can be done by cutting down the necessary bright light to the least amount consistent with efficiency, and by having an indirect safelight, giving all the light possible consistent with safety.

Contrasts are created by bright lights, and bright lights are brightest when we look directly at them. A bright light deflected to the darkroom-sink, or bench, would still be as bright as it was before, but it would not appear so, and the eye would not be subject to the constant strain of adapting itself to an alternating brightness and darkness, not to mention the loss of efficiency. All lights should be kept out of the line of vision. Clear glass electric light bulbs should never be used in the darkroom. They create very strong glare-spots, and should be replaced by frosted bulbs, if they cannot be replaced by an indirect method of lighting. Quick changes in brightness should be avoided, as far as possible. While they may merely produce discomfort, they can also produce temporary, and even permanent, injury to the eye. Glossy finishes to woodwork, walls, etc., are another source of glare, and should be eliminated. As contrasts increase in intensity, the eye instinctively demands a higher level of general illumination, which means that the eye seeks a compromise between the extremes of light and dark. The darkroom should be neither unduly dark nor should it have any bright spots, safety and efficiency considered.

ART is not an imitation, but an interpretation —"nature seen through the prison of an emotion," as Alfred Stevens has put it, rather than nature seen through a microscope. The microscope has never taken high rank in art.

JOHN C. VAN DYKE.

IN CRESTA WOODS — G. R. BALLANCE

The Photographer and His Lights

WILLIAM C. HUBBARD

SINCE Daguerre discovered his curious method of securing a permanent impression of the image produced by a simple converging-lens, there have been but three radical improvements in the science and art of portrait-photography — the method of reproducing the original impression by means of the negative; the use of the dry sensitive emulsion in place of the wet, and the development of a practical substitute for daylight in the form of the mercury-vapor lamp.

Daguerre's discovery — said to have been accidental — remains one of the curiosities of science. Surely no stranger method of obtaining so simple a result can be found in all the annals of invention. Naturally, the uncertainties incident to the practice of his process were commensurate with the scanty knowledge of the chemical reactions involved, and the skill required in carrying them out. Having your daguerreotype "struck," had something of the fascination of a lottery. What you would see, when the patient artist had finished his mysterious manipulations, only an inscrutable Providence knew. For all this, many really fine portraits were made — portraits of which the photographer of to-day might well be proud.

From the daguerreotype to the "you-press-the-button-we-do-the-rest" photograph of to-day, all successful efforts in improvement have aimed at one or both of two results — to simplify the technical knowledge and labor of the photographer by reducing the number of chemical manipulations which he must perform, and to eliminate sources of uncertainty in the results. In other words, the portrait-photographer, who was at first a more or less artistic chemist, is now almost wholly — if he is not a mere manufacturer of pictures — an artist. His necessary chemical manipulations call for no more technical knowledge than the housewife uses in her kitchen.

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In looking backward over the evolution of photographic-chemistry, one fact stands out prominently — that neither the quality of results has been enhanced, nor the cost of producing them reduced, in all the changes that have taken place since the negative-and-print process was perfected. The best portraits made by wet-plates and albumen-paper have not been surpassed in artistic merit by any produced by the most modern methods; and in the actual cost of materials to the photographer, wet-plates and albumen-paper were much cheaper than the dryplates and emulsion-paper methods in use to-day.

Wherein, then, lies the advantage which has caused these new methods completely to supersede the old? The answer is plain. The newer methods and materials have done away with most of the troubles and uncertainties involved in the processes which they have replaced.

The American, above all other nationalities, has a constitutional aversion to going to any more pains or trouble in his daily life than is absolutely necessary, and is willing to pay a good price for any means of escape. The readiness with which the portrait-photographer took up the more expensive dryplate is attributable to this racial characteristic quite as much as to its advantage in time of exposure; moreover, ready-sensitized papers were not used simply because the results might be more permanent.

By utilizing materials on which the most important and delicate chemical operations have already been performed by expert chemists and manipulators, working under the very best conditions, the photographer has been able to standardize the chemical end of his business to such an extent that failures from this source have been virtually eliminated. The effect on the *art* of portrait-photography has been most salutary. Unquestionably, the general standard of excellence has been raised very materially. There are more *good* photographs made, and less that are hopelessly bad. The average is better.

The last of the great improvements has been slower of general acceptance, the reasons for which are not so easy to understand. That photographs can be taken successfully only by sunlight used to be a fixed idea in both the lay and professional mind. The professional mind is gradually but surely changing. Such use as had been made of artificial light has been considered a mere makeshift. And although the photographer might be induced to pay more for ready, prepared plates and paper, he might decline to pay for light when he could get daylight for nothing. Furthermore, it was hard for him to be convinced that the cost of artificial light would be offset by any advantages it might possess without incurring a considerable expense, as compared to the trifling cost of trying a new make of plates or paper.

When the production of motion-pictures became one of the great industries, involving millions of dollars in capital and output, the limitations caused by the variations and uncertainties of daylight were too serious a matter to be dismissed on mere preconceived ideas. Any method offering a fair chance to place the all-important item of illumination on a dependable basis was sure of a thorough trial.

Although individual photographers of the more progressive sort had amply demonstrated that the mercury-vapor lamp, invented and perfected about fourteen years ago by Dr. Peter Cooper Hewitt, was a satisfactory substitute for sunlight for every photographic operation, the great motion-picture studios had more at stake in obtaining a satisfactory artificial light in place of the natural product. There is this difference between the two classes of studios: the subject pays the professional photographer for taking his portrait, the "movie" producer pays his subjects for posing and, incidentally, the biggest salaries that are paid in the world. Taking chances of failure with the expenses running on at the rate of ten dollars a minute is not good economy. It is not at all astonishing, therefore, that some of the largest studios have more than a thousand Cooper Hewitt lamps in operation. That the results are fully equal, if not actually superior, to those obtained in the sun-lighted studios in point of artistic merit is sufficiently attested by the fact that the use of the artificial light has become virtually universal in the face of the keenest competition for excellence of product. For best lighting-effects, artificial lights are an absolute necessity.

Considering that the branch of indoor-photography doing ninety-percent of the business has generally adopted the mercury-vapor lamp, and that a considerable number of the portrait photographers whose work has placed them at the head of the profession have likewise accepted this form of artificial illumination as preferable to the glass skylight, it puzzles the layman to understand why it has not displaced daylight as completely as the dryplate has displaced its predecessor.

Can it be because of the cost to operate electric light? Then the photographer must set a very low value on his own time; for the cost of electric current will not average more than half a cent an exposure, and the additional work that can be done at times when daylight is not available should pay this a hundred if not a thousand fold — a point that requires no argument.

XUM

HANGING-ROCK FALLS CHAS. M. DEBEVOISE

Is it because of the first cost of the Cooper Hewitt lamps? Then the photographer must be either a poor economist or doing business "on a shoe-string." The equipment used for years by one of the best-known professionals on Fifth Avenue, New York, can be purchased to-day for something less than $400; and very satisfactory work is being turned out with outfits that cost no more than $150. Aside from the cost of current, the expense of upkeep is not worth the accounting; it will not amount to one-percent a year on the investment.

Perhaps a vague notion that, being an electric apparatus, the lamp requires a degree of technical skill to operate it, may cause some to hesitate. If so, the notion is unwarranted. Turning the common electric-light switch is all there is to it, so far as the user is concerned. One of the most successful operators in the United States has a rack of six Cooper Hewitt tubes placed permanently at an angle on the side-wall of his studio, which is one of a suite of the average run of business-offices. When he makes a sitting, he turns on the lamps, pulls down the window-shades and poses his subject in such a position as to obtain the particular lighting-effect which he considers best adapted to the case in hand. By experience, he has found the different positions required to produce all the typical lighting-effects, so that he can at once obtain any desired lighting by the simple arrangement of sitter and camera, with the aid possibly of a small, adjustable screen. With a little intelligent experimentation, lighting by these lamps can be reduced to a matter of infallible routine, and work turned out much more quickly, as well as of a more uniformly high character, than under the old-time skylight.

Thus, the objections that occur most readily appear to have no foundation in fact. On the other hand, there are several obvious and important advantages in the use of artificial light. First, of course, is the complete removal of the only remaining source of uncertainty in results; viz., the fluctuating power of daylight. This advantage is too evident to need lengthy discussion. The studio lighted by mercury-vapor lamps has the same advantage over the skylight that the steamship has over the sailing-vessel. Not even the high sensitiveness of the dryplate, as compared to the wet, was a greater boon to indoor photographic practice than the production of a complete substitute for sunlight.

Among the benefits accruing from the use of Cooper Hewitt light is the ability of the photographer to locate his studio in *any* building in which he can procure a suite of two or more business-offices of the regular type, or a ground-floor suite of rooms, if he desires, with greatly increased opportunity. The old-time skylighted attic was subject to a long list of constitutional ills. It was cold in winter and hot in summer. It was difficult of access, and as forbidding in aspect as the operating-room of a hospital. It required no end of curtains, and strings for pulling them, and was as prone to leak as a torn umbrella. It had to be built especially for the purpose, and at the photographer's expense.

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Substitutes for Platinum-Toning

FLORENCE

ALTHOUGH platinum-toning is of relatively recent date in comparison with gold-toning, it has nevertheless gained the larger number of adherents.

Its introduction was due partly to the circumstance that a black tone was at one time considered very modern, and partly to the fact that many professional photographers were accustomed to use for the gold-toning the not entirely unobjectionable combined toning- and fixing-bath, which led to many complaints regarding the lack of durability of the prints. As platinum was at that time comparatively cheap and the toning sure, and with careful work gave thoroughly durable prints, it gradually took the leading place.

The increase in the cost of platinum, however, gradually made the process quite expensive, so that ways and means were sought to obtain similar tone-results by other and cheaper methods. As far as printing-out papers are concerned — and they still take the lead — the desired result has not been easy to obtain. This is due to the necessity of using a gold-bath for toning, and its behavior towards the various photographic papers.

In all forms of toning, the final shade is made up of the coloring of the silver in the print and the added product of the toning-bath — gold, platinum, coloring-matter, etc. But the color of the silver print — that of the precipitate received in the toning-bath and corresponding to the length of time the print has remained in it — changes in the fixing-bath, and for this reason, as is generally known, it is extremely difficult to obtain black or deep brown-black tones.

There will naturally be the best prospect of success when these factors, i.e., the coloring of the silver-image and that of the precipitate of the toning-bath, are both dark. In the silver-print, this depends largely upon the nature of the emulsion as well as upon its thickness. The coloring of the added deposit — in baths of metallic salts — depends mainly upon the nature of the metal itself, and also upon the composition of the bath. Although platinum always gives a dark deposit, it appears to be extraordinarily variable in the gold-bath. Acid gold-baths give very warm tones, neutral baths give darker ones and alkaline baths the coldest tones. In the rhodan gold-bath, the final tone depends likewise, to a great degree, upon the composition of the bath.

But gold-baths are always inclined to produce blue as a final tone. Hence, with gold-toning we can obtain only a neutral black or an intense brown under the most favorable conditions, while blue-black or violet-black can be got very easily and surely. As above stated, the work is rendered much more difficult by the change of color in fixing. If this factor could be eliminated by a different mode of working, i.e., by toning *after* fixing, or by using a combined toning- and fixing-bath, the object would be much easier and surer of attainment.

Toning-baths that give a very dark, almost black tone on suitable paper have long been known; but that circumstance at first received very little attention. Later, more thought was given to the subject, and Professor Namias studied the conditions for obtaining black tones by the use of combined toning- and fixing-baths, and he came to the conclusion that the salts of lead played a very active part in the toning-bath. A print toned in a bath containing a strong solution of lead will consequently be composed of silver, gold and lead sulphate, to which eventually silver sulphate may be added. This view appears to be well founded, because the lead sulphate, in distinction from the silver sulphate, possesses a deep brown-black color which can readily be changed to a pure black by a brief gold-toning. This will be all the easier to obtain, the more the emulsion on the paper is inclined toward dark tones. To attain this object, Professor Namias does not recommend a so-called alkaline fixing-bath, but only *acid* toning- and fixing-baths with a high percentage of hypo, because in this way a quick and thorough fixing-out is assured, which is important for avoiding defects that would appear later.

A pure platinum-toning, without previous or subsequent gold-toning, generally gives a more or less brown shade rather than pure black. With the increasing use of gaslight paper instead of printing-out paper, every possible effort has been made to obtain this tone with the gaslight papers, so that they might be used in place of the printing-out papers with platinum-toning. The tone seems to be difficult to obtain with modified development where a large number of prints is to be made. Nevertheless, a very close approximation to it has been obtained by adjusting the emulsion to the peculiarities and mode of action of certain developers.

There are two ways to do this. The first aims

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THE GLORY OF AN ENDING DAY — RICHARD PERTUCH

at producing directly, by developing the exposed emulsion, a precipitate of the desired tone. By the second method this result is obtained by producing a weak brown deposit which, in combination with the black silver-print, gives the brown-black tone. This latter, therefore, may be considered as a real toning-process.

The brown precipitate may be produced in various ways, and some of these can be classed as genuine toning-processes. They are little known on account of the toning-agents employed, which in many cases are the property of manufacturers of photographic papers.

These browns can also be produced in other ways, not from a silver-precipitate, and also without toning the black silver-print, but by a deposit formed in developing. In this case the brown precipitate can be produced only during development, and in the simplest way, from the substance of the developer itself.

It is a generally known fact that the so-called organic developers in a pure solution in water, i.e., without the addition of sodium sulphite, metabisulphite, etc., readily oxydize into intense-colored dyes. If this oxydizing process takes place during development, a portion of the dye in process of formation can readily be deposited on the image as it appears, which always shows a warm tone. From this fact we can obtain practically, on gaslight paper, tones quite similar to those of platinum.

Among the numerous developing agents only those are useful for this purpose which possess sufficient developing-power in an alkaline watery solution; and among these pyrocatechin holds first place as being thoroughly suitable. By this method, and with proper exposure, the print is developed with good details and sufficient rapidity to avoid color-fog. For this reason, it is becoming more and more popular, and may be considered as a practical substitute for matte printing-out paper and platinum-toning.

The durability of such prints appears to be just as satisfactory as that of ordinary black gaslight prints.—*Das Atelier.*

Rendering Values

SINCE we must have some basis to start from, we will assume that the transcript from Nature, the fine technical landscape-photograph, is the normal method of rendering values; for artistic purposes, the scale of gradations may either be shifted upwards into a high key, or moved downwards into a low key, and the values will have to be adjusted accordingly.— A. J. ANDERSON.

XUM

Fog — Its Causes and Remedies

A. E. SWOYER

FOG of some sort is responsible for more spoiled negatives than any other factor, except incorrect exposure, and a knowledge of its several causes and remedies will prove of great assistance to every camerist.

First, of course, there is chemical fog, due to developer incorrectly compounded, with its resultant streaks and blotches; the use of prepared developers or the accurate following of the directions given for the compounding of suitable developers by the makers of the plates and papers used will naturally do away with this, although in some localities chemicals in solution in the water will cause trouble. If this is the case, relief may be found by using distilled — or rain — water.

Far more common is fog brought on by the use of developer that is either too warm or else exhausted. In the first case, the film is softened, the image flashes up very quickly and is covered almost immediately by a veil of fog. In the second, there is no immediate softening or sliding of the film, the image comes up slowly, with undue contrast, and a grayish fog appears when development is prolonged in order to bring out strength in the negative. It should be easy to keep the developer below the temperature of seventy degrees, even in summer, by the use of cracked ice or a water-bath; if neither is available, then the film should be hardened by the use of formalin in the developer, although in that case the character of the negative will be changed; as the temperature is not altered, the film being simply protected against the softening-effect, the negative will be "soft" and lack contrast. But if, through inadvertence, a plate is started in a partly exhausted solution, it may be saved by transferring to a bath of cool water as soon as the symptoms are noted, and as quickly thereafter as possible placing it in a fresh solution of normal strength. It is not difficult to distinguish between the two causes and to apply suitable remedies.

Another and somewhat similar form of fog is caused by the use of old plates, paper or films. The best way to avoid this is to use nothing but fresh goods for all important work, although for purposes not requiring absolutely perfect results some measure of success may be had with stale paper by considerably overexposing and developing in a solution well dosed with potassium bromide. If in doubt as to the age of the sensitized material, an inspection in the darkroom will often show whether it is fit for use — brownish or iridescent borders, or a general appearance of "muddiness" all over, should be sufficient cause to warrant the rejection of the material.

Of all the sorts of fog arising from faults in the developing-process — in fact, the most prevalent of all causes — is the inspection of the negative by actinic light before it is fully fixed. Such fog may be noticeable only as a slight grayness on the otherwise clear margins, the rest of the negative apparently being as brilliant as usual. Nevertheless, the fog extends throughout the entire negative and degrades it, so that a print made from it cannot be perfect, no matter how satisfactory it may appear. Of course, the remedy is, never to expose a negative even to the light of the darkroom until it has been in the fixing-bath long enough for every vestige of the white "coating" to have disappeared. If, however, some negatives are fogged in this way, they may be greatly improved by immersion in a weak solution of potassium ferricyanide and hypo (Farmer's Reducer) until the grayness disappears. If necessary, they should then be washed thoroughly to remove all traces of hypo, and intensified. As usual, the best course is to avoid the trouble in the first place.

So much for the forms of fog usually caused by faulty manipulation or chemicals; but there are other sources that may be found either outside of or in the camera itself. In order to decide which, so that the cause may be traced and removed, it is sufficient to remember that plates fogged in the camera or plateholder will develop with clear edges, whereas those for which outside causes are responsible will be veiled clear to the edges. Of the outside causes, in addition to those mentioned in the preceding paragraphs, are those due to a careless exposure to light or to the use of an unsafe ruby-lamp — with a few possibilities for trouble in the way of defective plateholders.

Thus, if the fog shows up all over, and is not due to chemicals or development, it would appear that the plate had been exposed to actinic light either before or after its insertion in the camera — and more care in the future implied. Fog produced by the ruby-lamp is not usually so dense as that just referred to. Quite often it does not extend all over the plate, but extends in a clearly defined strip across one edge — due to the fact that the rim of the developing-tray protected a portion of the negative, and is an almost certain in-

dication that the trouble is with the lamp. To make assurance doubly sure, a fresh plate should be exposed to the rays of the lamp — in the darkroom, of course, for the usual period and at the regular distance for developing. If, after development, this test-exposure shows a trace of fog, then steps should at once be taken to make the lamp safe either by inserting extra glasses or by substituting others of a darker shade. Or, if the fog is in the form of streaks that extend across the margin — showing the cause to be outside of camera or plateholder— there may be leakage of actinic light into the darkroom.

MY FRONT-DOOR STEP WM. LUDLUM, JR.

The plateholder, previously mentioned, is not likely to be a cause of trouble; nevertheless, it is capable to produce at least three varieties of fog. The first and most common of these is not the fault of the holder, but evidence of carelessness on the part of the photographer — this is the diagonal strip often seen running across one end of a plate, and is caused by inserting the slide corner-first instead of straight across. It is only fair to their makers to say that certain holders are so made that the slide may be inserted in any way without harm; but unless the worker is sure that he has one of that sort, he had better slip in the entire edge at the same time. One end of the plate may also be fogged if the light-trap of the holder is defective; but this form may be distinguished from the case just mentioned because it usually extends straight across instead of diagonally, or else appears as a series of jagged triangles extending straight into the plate — remedy, unless the amateur is an expert cabinetmaker and feels qualified to mend it, new plateholder! The third form of fog may be caused by an old holder whose sides have become more or less sprung, or by a slide not perfectly light-proof; but such cases are so rare, except with the extremely careless, that they may almost be disregarded.

It should be apparent that most of the forms of fog previously mentioned have been due, more or less, to the carelessness or lack of thought of the operator; but in the camera itself may lie troubles to vex even the most careful. There may be minute holes in the bellows, admitting light only in certain positions of the camera and extensions of the bellows; it may have cracked slightly along the folds, due to age or drying out of the leather. Perhaps the shutter sticks or does not fully close. It is also possible that the black paint may have worn from some of the inner surfaces, which reflect light entering through the

BY THE WAYSIDE — RUDOLF EICKEMEYER, JR.

lens back onto the plate. The plateholders or the camera-back may not fit tightly, so that light leaks in around the edges; or, in the case of a roll-film camera, the ruby window in the back, through which the film-numbers are read, may not be sufficiently dark in color. These are the most probable causes. Naturally, there are special cases without limit; but if one fails to determine the cause of trouble along the lines previously mentioned, it is pretty safe to assume that a journey of the camera to the repair-man — or, better yet, to the makers — will be the easiest method of discovery and repair.

Fortunately, virtually all the ordinary defects in the camera may be quite easily detected and measures taken to remedy them. For example, if the negative gives the indications of trouble with the camera, and not with the plateholder or in development — a method of such determination having previously been outlined — simply remove the back of the camera, close the shutter, and, with all outside illumination cut off with a focusing-cloth, point the camera at some bright light, when any leak in the bellows will be noticeable, and may be temporarily repaired with adhesive plaster until such time as the camera may be spared long enough to have a new bellows fitted. The same test may be used for a defective shutter, although in this case the shutter itself should be operated several times in order to give it the opportunity to stick, if so inclined — with true human perversity, it is likely to work perfectly while under test, no matter how badly it behaves at other times. Should it stick or fail to close, a tiny quantity of powdered graphite applied to the leaves may help matters, as may a drop of the finest machine-oil put on the sliding portion of the pneumatic valves — but, out of consideration for the pocketbook, one should not attempt to take the shutter apart nor put oil on the blades. Either course will be likely to ruin it entirely, inasmuch as a good shutter is a delicate piece of mechanism requiring adjustment by an expert, whereas if one oils the leaves, and they happen to be of rubber — well? In fact, with all bellows or shutter-troubles, time and money will be saved by shipping the camera at once to the makers.

To test for poorly fitting plateholders, loose backs and similar matters, the procedure just given should be followed, except that the back of the camera should be on and the shutter opened, while, with extraneous light shut off by a focusing-cloth, one looks into the camera through the lens; then, if the room is lighted, any leakage of light into the camera may be detected

almost instantly. To remedy such troubles, a narrow strip of black velvet should be used to pad out the parts that fail to join closely. If, however, the trouble is in but one of the plate-holders, and not in the camera at all, it is generally safer and cheaper, in the long run, to discard that holder entirely.

The remaining and common cause of trouble — the black paint being worn from spots in the interior of the camera — may readily be detected by inspection. The remedy is a fine brush and either some ordinary "dead-black" paint or the special preparation sold by dealers for the purpose. Or, if one uses a roll-film camera, and occasionally finds a dark, circular spot of fog in the center of the negative, it may be that the little ruby door in the back of the camera has proved too "weak" to protect the film if the camera has been permitted to lie closed in bright light. The appearance of this light-struck spot is similar to that caused by a shutter which fails to close properly. It may be distinguished readily, however, because its edges are sharply defined and there is usually some trace of the film-number printing through. The cure is a darker bit of celluloid, or greater care in not exposing the closed camera to strong light.

One other form of fog is found by roll-film users exclusively. It extends in a jagged strip along the film-roll and is caused by a failure to wind the protective paper on tightly. The cure is to tighten the spring in the bracket holding the film, or else to use care to see that the camera is unloaded in subdued light and that the paper is wound tightly, and sealed with the paper-sticker.

So we come to the end of the list; but not to the end of our fog-troubles, for every camera-user may find a new species not included in this article. Nevertheless, when fog occurs, if the photographer will decide first, by the tests given, whether the trouble lies in the camera or outside of it, and then by a process of elimination work down to the exact source, about nine-tenths of fog-troubles may be eliminated; whereas, if the user will combine some reasoning-power with the methods herein outlined, the remaining one per-cent may be speedily disposed of — and if so, then the purpose of the writer has been attained.

PACIFIC CARL HAGUE

Optical Glass: a Brief Historical Review

THOUGH photography is not responsible for the introduction of optical glass, it affected its manufacture to a considerable extent, as it imposed special conditions that otherwise need not have been considered. Different varieties of glass are needed for use in different instruments, and photography has demanded a much higher degree of chromatic correction than was required for other purposes, whereas the necessity to obtain a well-defined image over a large field has imposed a fresh condition requiring other special types of glasses. The all-important distinction between optical and other ordinary glass is, however, not merely one of composition, but one of quality; it must be perfectly homogeneous and free of striæ. The method of producing such glass was discovered about 1807, and its successful manufacture accomplished about 1814, Guinand, a Swiss, being credited with the first conception of the method, and Fraunhofer, a Bavarian, with the development of its application. Through Guinand's sons the secret of the method of manufacture found its way into France and eventually into England. The manufacture of optical glass in the former country began to be important about 1829, and in England (by Chance Brothers) about 1848, and these two countries rapidly obtained the lead in the industry. Prior to the discovery of the right method of making optical glass, opticians had to be content with merely selecting the best samples of glass they could find from material made in ordinary fashion, in consequence of which only small lenses could be produced. The discovery of the right method of manufacture enabled Fraunhofer to produce lenses of nearly 10 inches in diameter, whereas the further improvements made by Messrs. Chance Brothers, in England, led to the production of 29-inch lenses in 1855.

While these manufacturing-developments were taking place, various experiments were being made in respect to the composition of glass. Just about the time when Fraunhofer succeeded in mastering the mechanical details of optical glass-making, he discovered a method of testing the optical qualities of glasses of different composition, and of expressing those qualities in figures. In 1804 Wollaston discovered the black lines in the solar spectrum, which were afterwards called Fraunhofer-lines. In 1814 Fraunhofer investigated the same subject much more closely, and, with the aid of these lines, contrived his method of spectroscopically testing and definitely describing the optical qualities of glass, whereupon he promptly set to work to produce and examine new varieties. It should be understood that up to this time only two varieties were in use for optical purposes, crown and flint glass, and although both were used for the purpose of producing achromatic lenses, the manner in which they were used was more or less empirical in the absence of exact measurements of their optical qualities. With regard to the discovery that a combination of crown and flint lenses could be achromatic, Dolland is generally assumed to have been the originator, in 1757, though Chester Moor Hall produced the first achromatic telescope in 1733. Properly, the credit belongs to Hall; but he was a gentleman of independent means, living in Essex, and not in any way interested in the matter of precedent. He was a lawyer and mathematician, not an optician, and appears to have been quite content to let Dolland reap the credit of being the first discoverer of the principle and the advantage of securing the patent rights. Out of this discovery eventually grew a demand for more varieties of glass, for with simple crown and flint only a limited correction was possible. At first the only need was for visual correction, that is the bringing together of the more visible rays of the spectrum. Photography, when it appeared, demanded more. It wanted brought together both the visible rays for focusing-purposes, and the invisible actinic rays, so that visual focusing should suffice to produce a sharp photographic result. Color-photography has made further demands, as it requires perfect correction for the red, green and blue-violet rays, together with the more readily visible ones. Practically, color-work wants the lens to be corrected for the whole of the visible spectrum, and such a result cannot be brought about unless we have glasses that differ as regards their effect in the same proportion throughout the spectrum. Ordinary crown and flint do not do so, and therefore with them only a limited series of colors can be brought together. Hence, it was necessary to search for other kinds of glass possessing the required proportionate dispersion.

Fraunhofer, having found a means to test glass, set about this task; but his early death stopped further progress. Here it may be as well to deal briefly with the composition of glass. Speaking generally, glass is essentially a compound of an acid, an alkali and a metal. The usable acids appear to be limited to silicic, boric and phosphoric, whereas the possible metals are

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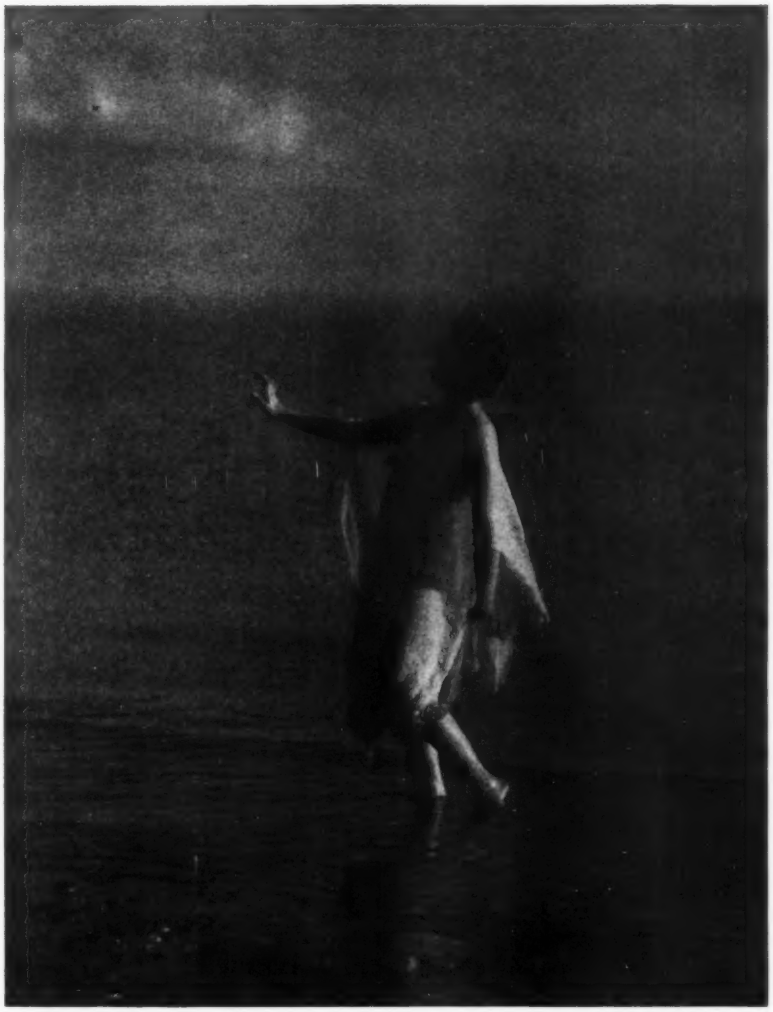

THE WATER-NYMPH
KATHARINE BRUCHERSEIFER

numerous. Ordinary crown glass is a silicate of soda and calcium; ordinary flint glass a silicate of potash and lead; whereas an intermediate type contains barium in place of lead or calcium. Barium (or baryta) has been used in place of lead since 1830, not especially for its optical qualities, but merely as a substitute for the more expensive lead. Flint glass (or crystal glass) was introduced in England in the seventeenth century, before there was any optical demand, and lead was a constituent of glass in very early ages, before the lead-potash or flint combination was invented. We may look upon crown as ordinary quality of glass, and flint as an extra fine quality of glass, devised especially for high-class table-ware. It was not until long after the introduction of flint glass that its optical qualities became recognized or of any importance.

The deficiencies of flint and crown achromatic combinations were recognized early, and attempts were made to substitute liquid lenses for flint. According to Coddington, Dr. Blair used a lens filled with solutions of ammoniacal and mercurial salts with very great success, whereas Professor Barlow used a lens filled with "liquid sulphuret of carbon," but, obviously, the problem could be solved satisfactorily only with glass. Fraunhofer made and tried various kinds of crown and flint glass, including a boro-silicate flint in which both boric and silicic acid were combined with lead and alkali; also a crown glass in which probably potash was used. About the time of Fraunhofer's death — or soon after — Faraday also produced a boro-silicate flint glass. A Frenchman, Maes, produced a zinc crown, apparently a boro-silicate zinc. Glasses containing fluorine and thallium were also tried in France, while in England Harcourt and Stokes experimented with boro-phosphate glasses, and also discovered the fact that boric acid lengthens the red end of the spectrum. Dr. Hopkinson followed their example in this country, while a magnesia crown glass was produced by Schoeder; but the difficulties and expense of the work handicapped and discouraged all experimenters on a small scale, and little real progress was made. It is evident, however, that the possibilities of various glasses were realized and a fair variety tried, whereas all that was wanted for further progress was the necessary capital and means for carrying out a full investigation. There is no reason but inertia why this should not have been done in England; but the German government was far-seeing. When Abbe and Schott showed their willingness to undertake the work, at Jena, a liberal government-grant enabled them to carry the matter through, and as the result of a vast number of trials and tests they produced glasses well adapted to the production of achromatised lenses.

In the meantime, another requirement had cropped up. In 1829 Coddington published the optical condition governing the production of flat-field anastigmats, the importance of which was manifested later, when photographic lenses became necessaries. Fourteen years afterwards, Petzval, of Vienna, rediscovered this condition — or else followed up Coddington's work, it is not clear which — then known as the Petzval condition. This condition, however, could not possibly be fulfilled with ordinary flint and crown glass, which fact both Petzval and Von Seidel pointed out. The thing looked as if it would always be impossible, and no attempt was made to conquer the difficulty, until Abbe and Schott began their work. They tackled this problem as well as that of producing glasses for more perfect achromatic correction, and solved both more or less completely. Thus virtually all the requirements of the optician in regard to material were met, and big developments in optical apparatus became possible. The example of Abbe and Schott was followed closely by Messrs. Chance in this country, also by M. Mantois in Paris, and at the present day optical glasses of great variety are obtainable. It should be noted that Fraunhofer should fairly receive the lion's share of the credit due to those who have helped to develop optical glass. If he had not died very young, he would probably have seen the thing through. The later work has been much simpler than his, and has depended mainly on the provision of money and time sufficient to complete a very laborious and more or less mechanical task. Virtually the same materials are used now as were used by him and by the other early workers, and the main result is that their use has been systematized and reduced to formulæ, while manufacturing methods have naturally advanced and improved very materially.

THE painter who creates a landscape "out of his head," in nine times out of ten finds it to be a reconstruction of forms already used by him, or the figure-painter of the Monticelli-Diaz type merely supplies through the imagination his idea of form and color, and presents us with something original, *founded on fact*. They are, therefore, not idealists in the true sense of creating a type or expressing a general conception. These people occupying a distinct and important position in art should be furnished with a fitting term of designation in art's nomenclature.— From "THE CONCEPTION OF ART," by H. R. POORE.

XUM

WINTER IN THE BRONX — DR. D. J. RUZICKA

The Printing-Medium

IN choosing a printing-medium, the first quality to be required is permanence, for it is assumed that, if the worker has given time and thought to the production of a work of art, he will not want it to disappear in the course of a few years; whereas if he sells it, honesty demands that it be as stable as possible. There are certain printing-papers which can be depended on for permanence, and others which will give results that are permanent if care has been taken in their production, but not otherwise, whereas some are absolutely unstable in the best of circumstances. A black and white platinum print on linen paper or vellum may be relied on for permanence, and the same is true of a carbon or gum print in a stable color; but a gum print superposed on a black platinum will be durable in the same circumstances. Unfortunately, we have no means to know what pigments are used in making carbon paper; but the various color-manufacturers will furnish information about permanent pigments for use in the gum or gum-platinum process. If mercury is used to produce brown tones on platinum paper the permanence of the print becomes doubtful, though a permanent warm black may be obtained by using the developer hot, this treatment also serving to reduce contrast. In most cases the best effect will be attained by making the print in a warm or cold black or a brown, other colors not being desirable, and these tones are readily obtained in permanent form on platinum, carbon or gum paper, but a stable warm brown may be obtained on bromide paper. It should be noted, however, that no black and white print on bromide or gaslight paper can be considered absolutely permanent, despite the claims of the manufacturers, and this is true of any color except one that is obtained by the redevelopment process, in which potassium ferricyanide, potassium bromide and sodium sulphide, or an equivalent, are used. Albumen paper gives very beautiful results, especially in the lower portion of the scale; and if the prints are properly toned, fixed and washed, they may be relied on to remain in good condition; but a failure in any of these processes will result in fugitiveness.—PAUL LEWIS ANDERSON, in "PICTORIAL LANDSCAPE-PHOTOGRAPHY."

How To Make a Holder for a Wratten Filter

LEHMAN WENDELL

PANCHROMATIC plates, or plates sensitive to all colors, are being used more and more, and they would be still more popular among amateur photographers if the cost of the necessary accessories were less. At least one filter must be used with panchromatic plates, though a set of three is to be recommended. A 2-inch filter is listed at $1.40. A holder for this costs $2.50. It is the purpose of this article to show how this $2.50 may be saved by making a home-made holder which serves the purpose admirably and which can be used for any additional filters that the photographer may later purchase. The holder can of course be varied so as to fit any shutter, but the one herein described is made to fit a Compound shutter.

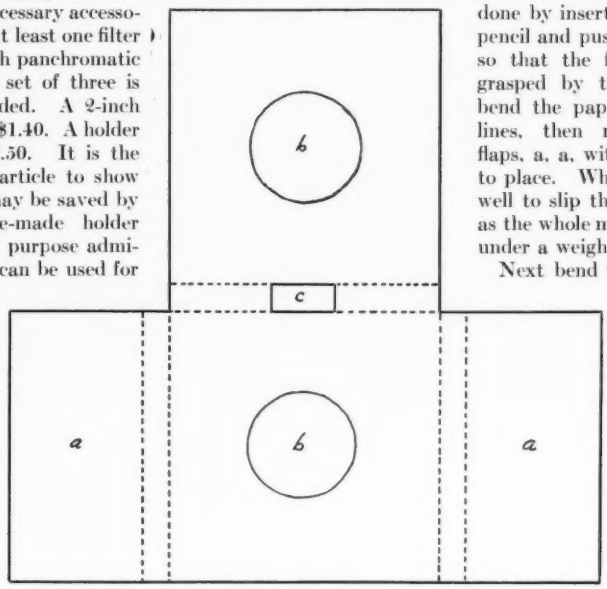

FIG. 1

The holder is made of a good quality bristol-board, a paper used largely by printers and artists. It can be had at any stationery-store. A rubber-washer, such as is used in coupling a garden-hose, and a short piece of wire will also be needed. Let us suppose that the holder is for a 2-inch filter.

First cut the bristol-board to the shape pictured in Fig. 1. The dotted lines show where the paper is to be cut lightly and then folded. As will be seen, the two flaps, a, a, are made just wide enough to meet in the center when folded. This not only presents a better appearance than if they were made narrower, but it also serves to make the holder more rigid by providing a double thickness of paper. Two holes, b, b, are cut out; it is evident that they are to come in line with the lens of the camera. Another cut-out, c, is also provided; this is made to facilitate the removal of the filter, which is done by inserting the point of a pencil and pushing out the filter so that the free end may be grasped by the fingers. Now bend the paper at the dotted lines, then moisten the two flaps, a, a, with glue and press to place. While doing this it is well to slip the filter into place, as the whole may then be placed under a weight while drying.

Next bend the wire as shown in the illustration, Fig. 2. Notice that there is an outward curve to the wire. Now, by means of some short lantern-slide binding-strips, glue the wire to place. Next cover the three edges of the holder (bottom and two sides) with binding-strips, just as if you were binding a lantern-slide, and then glue a black paper over the front and back of the holder. Next glue the rubber-washer over the lens-opening. This completes the holder, and by hanging it over the dial of the shutter and allowing the rubber-washer to slip into the lens-barrel the holder will be found to fit snugly and rigidly.

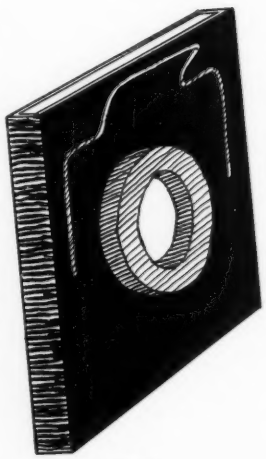

FIG. 2

THE unsophisticated amateur, ambitious to improve his work, should be sure that the standard he wishes to reach is one approved by the highest authority.

WINTER-EVENING DR. F. F. SORNBERGER

Burson Tries a Dangerous Scheme

MICHAEL GROSS

THE Home Borough Development Company owed its existence to Burson. It sprang into being simultaneously with the "scheme" of which it was the nucleus. Burson, determined to put his hard-earned and costly knowledge of photography to use, had tried in vain to earn money with his camera. Then the "scheme" suddenly came into his head. It was magnificent in its very simplicity. Burson became The Home Borough Development Company. He had a gilt badge made with the name in blue enamel letters and the words "OFFICIAL PHOTOGRAPHER" engraved across the top. Then, one bright morning, he pinned the badge to the lapel of his coat, picked up his camera and things and started out.

The first place he entered was the delicatessen store around the corner. "Good morning, Mr. Schultze," he greeted the proprietor; "I've come here this morning to take a photograph of your store."

"I don't vant the store's pitcher took," Mr. Schultze told him; "I'fe got no money to trow avay on pitchers" — which was just the answer Burson expected. Practically, the same words had served to turn him away on his last visit, but that was before he had thought of the "scheme." Now he merely smiled and went on talking. "You don't understand, Mr. Schultze," he explained; "this is n't going to cost you one cent. Do you see this badge?" — pointing to it — "well; I've been appointed official photographer for the Home Borough Development Company."

"Und vat are dey?" Mr. Schultze asked.

"The company has been formed," Burson went on airily, "to show merchants in near-by towns the advantages offered by this borough. We want to get a photograph of the leading store in every line. The company will bind these photographs in a book and then distribute the books to out-of-town merchants, to get them to come here."

Schultze became interested. "Vell, vy did dey pick my store oud?" he demanded.

"I'll tell you," Burson said. "While it is true that your store is n't by any means the largest in the neighborhood, still the company decided it

was the most representative; in other words, it had the finest window-display, the freshest goods and" — with a smile — "the most efficient proprietor."

The subtle flattery made its appeal, and Schultze brightened up perceptibly. "And you say it ain't going to cost nodding?" he queried.

"Not a red cent," Burson assured him.

"All right den, I'm villing," Schultze said; "but chust vait a minute 'till I fix up de show-vinder a little bit. Und I vill tell Katrinka to come out. Ve'll have a regular family grouper, eh?" he added, slapping Burson on the shoulder good-naturedly.

Burson chuckled as Schultze disappeared through the curtains that shut off the rear of the store. "If they all fall as easy as this," he said to himself, "I'm a made man."

In a few minutes Schultze reappeared, followed by his wife, Katrinka. They commenced arranging the frankfurters, wursts, cheeses and salads as artistically as such things can ever be laid out in a show-window. Then Mrs. Schultze carefully wiped off the plate-glass front, helped her husband into a clean white apron, donned one herself and they were ready. Meanwhile Burson had set up his camera in front of the store, and, after posing the Schultzes, he snapped away.

"Thank you, Mr. Schultze," Burson said a few minutes later, as he packed his outfit and prepared to depart.

"Vone minute" — Mr. Schultze stopped him — "can't I see a copy of de book ven it is finished?"

Burson shook his head. "I'm afraid not," he said, "you see I'm only the photographer. I have nothing at all to do with putting the book together. But I'll tell you what I'll do," he went on, lowering his voice, "you've treated me pretty well, and before I send the picture off, I'll drop around and show it to you."

"Dat'll be fine," Mr. Schultze said, "much obliged."

"Guess I'll test out the whole scheme on Schultze before I try it on any one else," he mused on the way home; "if I sell to him then I'll know I'm on the right track." Accordingly he hurried to his room, developed the plate and the next morning finished up two prints from it.

"I've got those photographs here," he announced on entering Schultze's place a little while later — and both the Schultzes came forward hurriedly. Burson drew the two pictures out of an envelope and then looked around cautiously. "Here they are," he finally said, handing them to Mr. Schultze, "pass them right back to me when you're through." They were really fine pictures, the specially decorated windows and the new aprons having taken finely, giving the photographs, in the eyes of Mr Schultze, an enhanced value.

"Dey are certainly goot," came from the Schultzes in chorus; and then Mr. Schultze asked anxiously — "Is dere any vay I can get one or two of these?"

Burson threw up his hands in evident horror. "I could n't think of such a thing," he assured Schultze, "it would be as much as my job is worth if the company caught me giving any of these pictures away."

"Who said anyding about *giffing* dem avay?" Mr. Schultze demanded; "I'd be villing to pay you for dem." Burson shook his head.

"Nobody vill ever know de difference," Mr. Schultze pleaded, "I'll pay you vatefer you dink de pitchers are wort, and who'll be de viser?"

Burson smiled to himself. The human trait that he had relied on for the success of his scheme was proving itself most admirably. Now that Schultze thought there was no possible chance to secure the photographs, they suddenly became highly desirable. Heretofore it had been Burson who had to plead if he wanted to sell his pictures. Now it was the customer who was doing the coaxing. Burson waited a few moments, to increase Schultze's eagerness; then he spoke:

"Listen, Schultze," he said, drawing close, as if in fear of being overheard; "I like you and I'm going to let you have these two photographs for a dollar. But only on condition that you won't show them around."

And then Schultze — the same Schultze who only the week before had remained obdurate when Burson pleaded for a chance to make pictures of the store for twenty-five cents each — extracted a dollar from the cash-register, passed it over to Burson and received the two pictures he coveted. "Much obliged, Mr. Burson," he said, as he put them into a drawer of the desk, "und you can rest easy. Nobody vill see dese pitchers. Dey vill be sent ofer to mine and Katrinka's people on the odder side in a few days."

Burson said good-by and went straight home. He loaded up a dozen plates, and ten minutes later was back on the street again. Working the same scheme that Schultze had proved such an easy victim for, he succeeded in getting nine merchants to dress up themselves, their families and their store-windows and have a picture taken. Burson waited patiently in each instance, knowing that the more artistically the window was arranged, and the handsomer the group in front of the door looked, the more would the proprietor coax for a chance to buy the pictures — and Burson was right.

XUM

RAINY-NIGHT VISTA
W. R. BRADFORD

The day after he had exposed the nine plates, he came around with the finished photographs, and condescended to take a dollar from each merchant for two pictures of their store. He had collected eight dollars, and had only two pictures left — those showing the store of the neighborhood butcher. He entered this last place confident that he would make a clean sweep. The butcher, somehow, seemed to know just what Burson had come for. "Got those pictures?" he asked, and Burson nodded. "How much do you want for them?" was the next question, and Burson pretended to be very much surprised.

"Why, they're not for sale," he said, "I just came around to show them to you, as I promised I would."

"Oh, I guess you'd sell me two if I coaxed you hard enough," the butcher replied, with a peculiar smile on his face.

Burson, flushed with his previous successes, failed to notice the smile, and the butcher continued:

"By the way; what company did you say you represented?" he asked.

"The Borough Development Company," Burson answered, "and here's my badge to prove it."

"Oh, that's all right," the butcher assured him; "I just forgot the name for the moment. Now let's get down to business. Is n't there some way I can get a couple of those pictures? I really want them."

"This was the proper spirit at last," Burson thought, and he finally agreed to sell the two photographs for a dollar. The butcher received them and passed over a bill. Burson reached out and took it. As he did he felt a hand on his shoulder, and turned — to face a policeman. "Better come along with me, son," the policeman said. "Guess you better come along, too, Tom," he added to the butcher.

The events of the next half hour were like some horrible nightmare to Burson. The only thing he remembered was being led in front of a railing behind which sat a gray-haired, stern-looking man who, Burson thought, must be the judge. "What's the charge?" he asked. Burson was too dazed to listen closely, but he managed to hear snatches of the conversation now and then — "money under false pretenses" — "impersonating an officer of a company" — and other meaningless phrases.

Finally, the policeman ceased talking and the butcher was called on to testify. In a few minutes, he had told his story, and then Burson was brought forward. The judge stood up and commenced to talk to him. He said something about "the extreme youth of the prisoner," and "reasonably good value having been given for the money" and other things that Burson only dimly understood. The sentence the judge concluded his speech with, however, seared its way into Burson's brain with startling distinctness. It was — "You are fined ten dollars."

Burson drew out the nine dollars he had collected that day, added to it the dollar he had received from Schultze the day before and passed the entire amount over to the clerk seated alongside the judge. Then he was allowed to go; and he stumbled out into the dark, dark night, *sans* scheme, *sans* money, *sans* everything.

THE apprehension of pure beauty, which may appear to be an exercise above the reach of reason, depends, after all, upon taste, and leaves the case, at any rate, in the *ignus fatuus* of personal preference. Such combination of colors as is accounted beautiful to one, is abhorrent to another. The music of the Chinese or the South-Sea Islanders is a distress to the votaries of the modern school of opera, and, conversely, Wagner is doubtless as incomprehensible to the Chinese and Malay as to Tolstoy, who derided it. In the realm of absolute pure beauty, taste will always be a subverting factor in any hypothesis. When, however, we bring our attention to the intellectual apprehension of art, the question of beauty opens to analysis; and in many cases, markedly in those where positive ugliness is the subject, it is found that art's demand for pleasure is satisfied wholly by the means of expression. If these fit adequately the character of its ugliness, so that the subject is made explicitly and pronouncedly so, the intellectuality of the artist in its discernment of character is our pleasure. But why deceive ourselves into the supposition that the work is beautiful? Could we gaze upon Rodin's aged strumpet, or MacCameron's "Absinthe-Drinkers," groping in the last stages of paranoia, and exclaim, "How beautiful!" Is it not time that we used terms for our ideas that express them, and thereby obtain a revelation of truth? Let the ejaculation be, "How characterful!" and acknowledgment made that the means employed, which technically express it, are masterly, and that constructively the work exploits the principles of art. These are added reasons for a sane pleasure in such works; and the three reasons of character, of technique and construction are what qualify them as art, despite Tolstoy's contention that only such works as can show a moral basis can be considered art. — From "THE CONCEPTION OF ART," by HENRY R. POORE.

EDITORIAL

Famous Portraits in American Art-Galleries

THERE is no question that students in portrait-photography appreciate the value of the works of the great portrait-painters as sources of inspiration. Photographers eager to behold and admire examples of portraiture by celebrated artists, but who live a great distance from the home of the Metropolitan Museum of Art, seem to think that there are no pictures worthy of note outside of Greater New York. The Editor referred recently to the numerous art-galleries scattered throughout the United States that contain worthy examples of the great masters in art. He now takes pleasure in stating just where such pictures may be found.

Of course, the serious student will hail with delight an opportunity to visit the Metropolitan Museum of Art, New York, now one of the leading picture-galleries of the world. Here are assembled portraits of great distinction, and of undisputed genuineness, by the great masters of Europe. Among the private art-collections of the Metropolis, the one owned by Henry C. Frick is easily the first — since those of Altman and Morgan have been merged with the Metropolitan. Philadelphia is probably unrivaled, among American cities, as possessing the most valuable private collections. Her eminent citizen, Mr. John G. Johnson, is the happy possessor of authenticated masterpieces by Rembrandt (12), Bol, Hals (2), Rubens (7), Van Dyck (5), Cranach (3), Tintoretto, Murillo, Reynolds (5), Gainsborough (6), Romney (2), Hoppner, Raeburn, Whistler (2), and Meissonier — mostly portraits. What a feast! The Widener and Elkins collections are likewise rich in portraits by the old masters, and John Howard McFadden owns many fine examples of the early British school. This splendid collection was on exhibition for several months, last autumn, at the Pennsylvania Academy of the Fine Arts. The Academy has a number of representative examples of the early English and American schools and, certainly, the finest collection of Stuarts — fourteen, including the famous Lansdowne portrait of George Washington — in the United States.

Baltimore, for many years, has been proud of its Walters Gallery of Paintings, notable among which are portraits by Tintoretto, Raphael, Rubens (2), Holbein (3), Rembrandt (2), Hals, Bol, Van Dyck (3), Reynolds (2), Gainsborough, Hogarth, Romney (2), Hoppner, Raeburn (2), Lely (2), Stuart, Le Brun, David and Meissonier.

The Art-Institute of Chicago boasts a large collection of pictures by artists of various schools, among which are admirable portraits by Rembrandt, Hals, Rubens, Van Dyck, Ter Borch, (Terburg), Maes, Netscher, Romney, West, Stuart, Copley, Healy, Bonnat, Zorn, Melchers and Sargent. During the summer, valuable loan-exhibitions are held at the Institute, where masterpieces of priceless value may be seen.

In St. Louis, the Bixby collection is the most important, and ranks high among the private picture-galleries of the country. Charles Lang Freer's collection of European art takes the lead in Detroit. Mr. Freer also owns what connoisseurs regard as the finest and largest collection of pictures by James McNeill Whistler, comprising over one hundred of this artist's finest works. This priceless collection was presented by Mr. Freer, recently, to the National Museum at Washington, where it can now be seen. The Detroit Art Museum is young, but active and ambitious, and, before long, will astonish the country by the extent and importance of its art-treasures. It owns already many fine pictures by eminent American and European artists.

The youngest art-center in the United States is Cleveland. Its beautiful museum was dedicated last June, and opened its doors to the general public with a notable display of American and European art. Of particular interest to the student in portraiture, there, are superb portraits by Rembrandt, Hals, Ter Borch, Goya, Allori, Van Dyck, Reynolds, Raeburn, Romney, Gainsborough, Hogarth, Lawrence, Copley, Stuart, West, Healy and Fuller, which, though lent partly by private individuals, are likely to remain in the museum undisturbed.

Boston, the great educational center, has a large and magnificent art-museum — without a peer in America — which, however, lacks a representative collection of paintings and statuary. Nevertheless, it owns admirable portraits by Velasquez, Moroni, Solario, Cranach, Rembrandt, Hals, Van Dyck, Reynolds, Gainsborough, Raeburn, Stuart (13), Copley (8), West, Healy and Whistler. But by far the most valuable group of portraits by great masters is

owned by Boston's premier art-connoisseur, Mrs. John Lowell Gardner. Her famous Venetian Palace, filled with art-treasures of every description, contains, among other pictures by the great masters, portraits by Dürer, Holbein (2), Mino da Fiesole, Velasquez (2), Masaccio, Raphael, Titian, Pollajuolo, Tintoretto, Polidoro, Moroni, Del Piombo, Bronzino, Moro, Rubens, Rembrandt (2), Sustermans, Van Dyck and, though modern, a magnificent portrait by Degas. The Venetian Palace is open to the public at stated periods during the year.

The National Capital has two public art-museums — the Corcoran Gallery of Art and the United States National Museum (under the direction of the Smithsonian Institution). The former contains over three hundred modern paintings of exceptional merit by American and European artists, and is one of the sights of Washington. The latter contains among other numerous works of art an important and growing collection of paintings by European masters, together with fine examples of early and present American artists. Some of the museum's finest portraits are by Reynolds, Romney, Hoppner and Lawrence. Admirers of the genius of James McNeill Whistler will find here a wonderful collection of pictures by that artist, presented to the museum by Charles Lang Freer, of Detroit.

Loan-collections of great importance, containing portraits by distinguished artists, are frequently on view, so that a visit to the Nation's chief art-repository will always repay the effort.

The Toledo Museum of Art has reason to be proud of the progress it has made in acquiring genuine and exemplary works of the great painters. Among the most valued possessions are portraits by Velasquez, Rembrandt, Bol, Hals, Van Dyck, Reynolds, Raeburn, Stuart, Copley and West, well worthy of visits by the people of Ohio and strangers that pass through the city.

Although, obviously, access to the homes of the owners of valuable art-collections is denied to the general public, the honest and respectable picture-lover may obtain admission by application through the proper channels. Sad to relate, there have been instances where the hospitality of an art-patron has been grossly abused by persons who proved to be vandals or kleptomaniacs. Small wonder, therefore, that the owner of valuable works of art will restrict the inspection of his treasures to intimate friends and distinguished guests, unless the stranger seeking the privilege is vouched for by discriminating friends of the prospective host, or other persons of adequate responsibility; and, in truth, the owner of celebrated pictures would rather show them to appreciative strangers than to indifferent acquaintances.

John J. Enneking

ENNEKING, the genial landscape painter, is no more. He has gone to the land that is filled with glories far greater than any that inspired his brush on this terrestrial sphere. While living, he was never wholly satisfied with his own manner of interpreting the subtle beauties of nature — beautiful, growing and admired as it was — even in his latter years, when portraying the exquisite mystery of budding spring or evanescent autumn. He longed for greater powers to understand and to express through his medium Nature's glorious visions. Yet he comprehended the language of the divine Creator, to the extent that he realized the inadequacy of the artist's means of expression, and he continued to search assiduously for more light to illumine his path toward his coveted goal. His art was his life, his inspiration, his religion.

And Enneking, perhaps more than any painter I can name, appreciated the power and resources of photography as it served the ends of the true artist. He had no interest, whatever, in photography as a purely mechanical activity, nor did he stop at a photographer's show-case to note the progress of the art. He was too busy a man, and too much absorbed with more serious problems. When his attention was directed to some really meritorious work — work that indicated the creative ability of the photographer, more particularly that of the amateur, who, by his superior advantages of education and opportunity, demonstrated that photography should be classed with the fine arts — Enneking displayed an interest that finally culminated in enthusiasm. He discovered that the artist-photographer, with his virtually unlimited scope of observation, his artistic intuition, genuine feeling and technical skill, could produce pictures of striking originality and beauty, making him forget the puttering easel-artist, fettered by tradition, convention and dry bones.

Thus Enneking, in his occasional visits to the offices of PHOTO-ERA, would take genuine delight in studying the work of such true photo-pictorialists as White, Macnaughtan, Anderson, Struss, Vandervelde, Krause and Davis, and the portraits of master-photographers — Garo, Goldensky, MacDonald and others. Indeed, he did not hesitate to declare that he derived more stimulating ideas and satisfaction from contemplating masterpieces by true artists of the camera than from paintings. He noted with admiration the fresh and simple beauty of a theme, the disposition of masses, the direction of line and the technical means of expression. Yet he was quick to perceive any deviation from the doctrine of unity and simplicity in pictorial composition.

XUM

ADVANCED COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA, Advanced Competition
383 Boylston Street, Boston, U. S. A.

Prizes

First Prize: Value $10.00.
Second Prize: Value $5.00.
Third Prize: Value $2.50.
Honorable Mention: Those whose work is deemed worthy of reproduction with the prize-winning pictures, or in later issues, will be given Honorable Mention.

Prizes may be chosen by the winner, and will be awarded in photographic materials sold by any dealer or manufacturer who advertises in PHOTO-ERA, or in books. If preferred, the winner of a first prize may have a solid silver cup, of artistic design, suitably engraved.

Rules

1. This competition is free and open to any camerist desiring to enter.

2. As many prints as desired, in any medium except blue-print, may be entered, but they must represent the unaided work of the competitor from start to finish, and must be artistically mounted. ***Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competition elsewhere, before Photo-Era awards are announced.*** Sepia-prints on rough paper are not suitable for reproduction, and such should be accompanied by smooth prints on P. O. P., or black-and-white paper having the same gradations and detail.

3. *Unsuccessful prints will not be returned unless return-postage at the rate of one cent for each two ounces or fraction is sent with the data.*

4. *Each print entered must bear the maker's name, address, the title of the picture and the name and month of the competition, and should be accompanied by a letter,* SENT SEPARATELY, *giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer and printing-process. Enclose return-postage in this letter. Data-blanks will be sent upon request.* ***Be sure to state on the back of every print exactly for what competition it is intended.***

5. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA, unless otherwise requested by the contestant. If suitable, they will be published in PHOTO-ERA, full credit in each case being given to the maker.

6. Competitors are requested not to send enlargements greater in size than 8 x 10 or mounts larger than 12 x 15, unless they are packed with *double thicknesses of* ***stiff*** *corrugated board, not the flexible kind, or with thin wood-veneer.* Large packages may be sent by express very cheaply and with indemnity against loss.

7. The prints winning prizes or Honorable Mention in the twelve successive competitions of every year constitute a circulating collection which will be sent for public exhibition to camera-clubs, art-clubs and educational institutions throughout the country. The only charge is prepayment of expressage to the next destination on the route-list. This collection is every year of rare beauty and exceptional educational value.

Quarterly Miscellaneous Competitions

IN order to extend the opportunities for participation by a larger number of our readers, and to broaden the scope of the entries, these will be a feature of 1917.

Awards — Marines
Closed October 31, 1916

First Prize: William S. Davis.
Second Prize: Franklin I. Jordan.
Third Prize: Christine B. Fletcher.
Honorable Mention: James Allan, Martha Curry, H. J. Durgin, Carl Hague, Carl Hermes, F. W. Hill, Taizo Kato, Warren P. Laity, W. H. McCrum, Alexander Murray, Anson M. Titus.

Special commendation is due the following workers for meritorious prints: O. C. Dean, Paul H. Means, Thomas E. Martin, Walter G. Willis.

Subjects for Competition

1916
"Flashlights." Closes December 31.
1917
"The Spirit of Christmas." Closes January 31.
"Miscellaneous." Closes February 28.
"The Spirit of Winter." Closes March 31.
"Home-Portraits." Closes April 30.
"Miscellaneous." Closes May 31.
"The Spirit of Spring." Closes June 30.
"Landscapes with Figures." Closes July 31.
"Miscellaneous." Closes August 31.
"The Spirit of Summer." Closes September 30.
"Vacation-Pictures." Closes October 31.
"Miscellaneous." Closes November 30.

Photo-Era Prize-Cup

IN deference to the wishes of prize-winners, the Publisher will give them the choice of photographic supplies to the full amount of the First Prize ($10.00), or a solid silver cup, of artistic and original design, suitably inscribed, as shown in the accompanying illustration.

Change of Address

SUBSCRIBERS who desire to change their addresses are requested to inform us not later than the 5th of the previous month, as the envelopes must be addressed and classified for mailing on the 10th.

Failure to do this puts it up to the subscriber to procure his copy from his former post-office address, and no duplicate copy can be expected from the Publisher.

We beg to invite the attention of workers to the rules governing the Advanced and Beginners' Competitions in order to facilitate a fair, intelligent and prompt decision on the part of the judges.

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Miscellaneous — Advanced Competition

Closes February 28, 1917

More often, this year, will come these general topics for competition, in which the magazine leaves the contestant free to make his own selection of a suitable subject to enter for the prize. The last two contests of this nature proved so popular, and brought out so many good things, that they are to be made a quarterly feature in these competitions hereafter. There are always some pictures that never seem quite to fit any specific competition, yet have sufficient pictorial value to be worthy of entry when the opportunity offers. These general topics will give all such a chance to prove their value.

The entering of one's work in competition with that of other workers is an illuminating experience. One is not likely to be the best critic of one's own efforts. According to the temperament of the individual, his own output is either over- or under-valued. I fancy the winner of the first prize is often a more astonished person than his unsuccessful competitors; but on the other hand there are those who do find it "only what they expected!" The attitude of the producer toward the finished product is by no means necessarily a just criterion of its value, but is very probably influenced by the method of production. If a person of imagination and "temperament" goes about to produce a picture which shall represent some aspect of Nature, or some mood of his own mind, he is very likely to be disappointed with his results. He has in his mind's eye an ideal picture to which his best efforts fail to measure up, and therefore, to his mind, the picture he has made is a disappointment and a failure. But is it a failure for that reason? By no means. Although it fails to come up to the ideal of its maker, it may still bring a message to others; and just because the artist had an ideal toward which he was working, his picture will come nearer the goal of true art, and be more likely to impress the judges, who have not the author's standard of comparison, as having that illusive pictorial quality which indicates a prize-winner.

Another person, having produced a picture by similar methods, may be unable to separate the mental picture from the actual one, and indues the latter with many qualities of the former invisible to any eyes but his. He is the one who thinks the judges most unfair and that the pictures are not judged on their merits. In this category may also be included the snapshot-worker who finds among the mediocre products of a day's trip one negative that astonishes him by its superior technical quality. If, perchance, some admiring friend is lavish in its praise, then is he sure he has produced a masterpiece, and is aggrieved that the judges do not agree with him on the subject. For these, and many other reasons, it is apparent that in regard to one's pictures, as well as in other respects, "self-judgment is not righteous judgment."

Not infrequently it is some interested and art-wise friend who first opens our eyes to the fallacy of our own valuations. With delight he pounces upon some disreputable print we are striving to keep concealed, and when we try to apologize for it with the suggestion that it must have gotten fogged, he replies, "So? Well! You had better fog some more!" And when we bring forward our pet successes, he, if he be frank, will be apt to remark, "Harsh! False values! No composition! Rubbish!" A good way to determine which, in the eyes of the judges, is the better judge of your work, you or your friend, would be to submit some prints of his choosing and some of your own; or send your choice in one competition, and when the next general topic comes around submit those of your friend's selection, and see what happens. Perhaps it would be illuminating to look over the prize-winners in similar contests. The results of the last contest of this nature were published in Photo-Era for August, 1916. The winner of the first prize is a genre of great merit. Do we require natural simplicity? This has it. Naturalness? Also here. Subordination of detail? Remarkably well done. The pyramidal composition is present, but not too obvious, and the whole thing is pleasing and pictorial, though the incident is only the homely and every-day one of drawing water from the old well. The second prize was also given to a clever genre composition, "The Idler." This, too, is exceedingly simple, and free of obtrusive detail. The strong diagonal line of the composition is abruptly stopped by the upright corner support of the building, which is excellently placed about one third of the way in from the margin. The third print to win honors is a still-life study. Here we look for more detail, and we find it, but not too prominently featured. The bloom on the grapes, and the little catchy lights, are all there, but the leaves are not wire-sharp and obtrusive. They keep their place as accessory to the main interest.

In the previous contest of like nature, the results of which were published in May, 1915, the winning print is perhaps less obviously superior. Possibly the obstacles overcome in making the picture were taken into account by the judges, for they must have been great. The second award was for a splendid sea-view. The wave has been caught just at the strategic moment, as it tosses the spray from its crest on the point of breaking. The unity of the print would be improved, to my thinking, had one inch of the foreground been sacrificed. The print winning third place is a soft-focus portrait, in an unconventional pose, and the page of honorable mention prints is most profitable for study. Six of the ten were taken against the light, and three of these six are admirable sunset-effects. The one in the lower left-hand corner is a genre, the woman and child splendidly posed and well placed in the picture-space. The sheep in the right-hand print stand out with cameo-like relief, and in both the last-named prints the backgrounds commend themselves for simplicity and soft detail.

A glance at some other prize-winners shows the prize-winning print in the Home-Portrait competition, published in June, 1916, to be a well-spaced three-quarters portrait of a man, absolutely lacking in detail, so far as coat and background go, but with hands well posed and spaced. Second in merit is the print of the unposed little fellow sitting on the floor, with one toy and no other accessory. The winning prints among Vacation-Pictures, published in February of last year, are a single dark figure in natural pose, shown against the sand and surf of the seashore, and a very soft-focus picture in which "Three Men in a Boat" furnish the only accent against the dark water and shore.

From this brief survey of past prize-winners, it would appear that it is not the brilliant, detailful print, technically perfect though it may be, that carries off the cup, but the picture that subordinates detail to unity, and concentrates interest on its main feature by all means at the artist's command. In fleeing from the "sharp as nails," Scylla, do not fall into the Charybdis of over-softness. A leading Boston photographer was recently heard to say that what most persons meant when they spoke of soft focus was in reality no focus at all, or out of focus. While hard lines may be objectionable, form and texture are requisites of good work, and though detail may be distracting in the unessentials, in the main object of interest it is valuable.

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WARRING ELEMENTS — WILLIAM S. DAVIS

FIRST PRIZE — MARINES

There are many methods of obtaining diffusion in the print, such as printing from the back of the plate, interposing one or more thicknesses of transparent celluloid between negative and paper, etc. The difficulty in these procedures is that diffusion is uniform throughout the print. They offer no power of selection. There is on the market a printing-frame that gives slight control. There are at the side little levers by which paper and plate may be separated. Part of the exposure may be made in contact, and then one end only or the entire paper may be slightly lifted. Some very good effects may be gotten by this means. Many are the means by which an artistically satisfying print may be obtained from a very crude and matter-of-fact negative. One really good print is worth all the time and effort one can expend upon it, and one such will be more likely to bring you the prize than a half dozen ordinary ones. KATHERINE BINGHAM.

Drying Negatives

DRYING is greatly facilitated by wiping the surface-water from both glass and film side. A quick and clean way with the film side is to put down on it a piece of clean, fine muslin, placing on this two or three thicknesses of blotting-paper and then gently rolling with a roller-squeegee.—*Photography.*

Photographic Negatives on Paper

PHOTOGRAPHIC negatives on paper have obvious advantages over those on glass, viz., cheapness, lightness and lack of danger from breaking. They also permit considerable liberty in retouching and, if the right paper is chosen for the purpose, modifying-work may be done with considerable ease with pencil and brush. Bromide paper is usually employed, and exposed and developed the same as glass plates or cut films; but one should be careful to use a non-staining developer such as a combination of Metol and Hydroquinone. Such paper negatives are usually employed for enlarged positives, which possess a quality of breadth and a marked artistic effect all their own.

At first, a contact positive is made on a slow dryplate, which positive should be full of detail and contain all the gradations of the original negative. The quality of the resultant enlarged paper negative depends upon the character of the original glass positive, and is produced in the same manner as an ordinary enlarged bromide print. If thin, smooth, bromide paper is used, the enlarged paper positive may contain more grain than the negative itself, which may be an advantage in some cases, as it breaks up large and heavy masses and produces a suggestion of that much-sought-after atmospheric effect. Full exposure and the utmost de-

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HAZY-BRIGHT — FRANKLIN I. JORDAN

SECOND PRIZE — MARINES

velopment are necessary in a successful paper negative, the density of which, judged by an abundance of orange light, is easily ascertained — of course, by looking *through* the negative picture.

Trial-exposures may be made with strips of bromide paper, so as not to waste large sheets in ascertaining the amount of correct exposure. A clean and non-staining developer for these paper negatives is prepared as follows: Metol, 48 grains; Hydroquinone, 80 grains; sulphite of soda, 2 ounces; carbonate of potash, 60 drams; water, 20 ounces. From this stock-solution take one ounce, and add three ounces of water and 10 drops of a 10 percent solution of bromide of potassium. After rinsing, the paper negative is placed in the fixing-bath for fifteen minutes, which latter should be composed of: hypo, 4 ounces; metabisulphite of potassium, 1 ounce, and water, 20 ounces. The print should be washed in running water for about an hour, or in a dozen changes of clean water. This moist print must be handled very carefully, as it is liable to injury.

If, in consequent printing, the grain of the paper negatives should be objectionable, greater translucency can be imparted by rubbing into the back a solution of Canada balsam (one part in 5 parts of turpentine) with the aid of a wad of cotton. Or, paraffin or beeswax may be used. One of the most successful American pictorialists was George C. Elmberger, whose favorite method of printing was from enlarged paper negatives. PHOTO-ERA for July, 1908, contains a very practical and valuable article by Mr. Elmberger on this important subject.

Avoiding Condensation on the Lens While Enlarging

I DO not know how prevalent troubles from condensation are in other climates when using an enlarging-camera with artificial illumination, but in this damp climate I have experienced untold trouble from condensation on the lens to such an extent that frequently it was impossible in the time at my disposal to get the lens in such condition that it could be used.

After trying various remedies more or less injurious to the lens, the following proved successful in overcoming the trouble. My enlarging-camera is in my darkroom, and the 300-watt nitrogen light and Parallax reflector are in an adjoining room, the camera fitting into an opening in the six-inch partition. In order to accomplish the desired result, I removed the ground-glass from the camera and put it on the opposite side of the partition three-quarters of an inch away from it. Three-quarters of an inch distant from the ground-glass I placed a plain glass covered on one side with white waxed paper. My reflector, with the lamp, is nine inches back of the last-mentioned glass. The result is a ground-glass diffuser, separated from the camera by the thickness of the partition and an air-space of three-quarters of an inch, an opaque diffuser three-quarters of an inch from the ground-glass. The air-spaces act as non-conductors, and prevent excessive heating of the lens, so that condensation does not take place. This does not cut down the light appreciably over the usual arrangement. — *A. Livingston Mason.*

Retouching Prints

ALTHOUGH it is quite customary to speak of retouching negatives, we seldom hear the term applied to prints. Any work done on the print is usually termed "finishing." Work on a bromide or gaslight black and white print may be done either with pencil or brush. Either of these does not precisely replace the other. Sometimes one, sometimes the other, is better. In general, brush-work is preferable; because, if even only fairly well done, it blends better with adjacent photographic result than does ordinary pencil-work. As a rule, the brush-work should come first. This helps to reduce pencil-work to a minimum. Brush-work would seem to be done with better blending effect when the print is neither quite wet not quite dry; i. e., that state it is in when it is taken from the wash-water and pressed between clean, dry blotting-paper for two or three minutes, and then exposed to the air for a few minutes. It is now limp and damp, but not wet. At first, practice should be with fairly but not very small brushes, one to lay on the color; the other, damp (but not wet) with water only to soften off the edges, if needed. If the color-brush is too wet, it will leave a wet blob on the print, which may easily give a dark edge or outline; if too dry, the color sinks in too rapidly, and is likely to look streaky or "edgy" in the result. Two broad sweeping touches of light color are better than one touch of darker color. Always begin with the lightest color, and work down to the lower tones. The touches and print will dry down a shade. Pencil-work must be done only when the print (paper) is quite dry. Ordinary lead-pencil is anathema; it leaves a shiny surface. Special "Negro" and other non-shiny pencils are obtainable from up-to-date dealers.

QUEX, in *Amateur Photographer*.

Long-Focus Lenses

IT is often said that photography dwarfs the distance. This is remedied, says a writer in *Photography and Focus*, to a great extent by the use of a lens of longer focus. The size of the image of an object on the focusing-screen or plate varies according to the focus of the lens that is used. If, then, we use a five-inch lens from such a standpoint that some near object — say, a figure — is an inch high, we can get that figure still an inch high by going twice as far from it and using a ten-inch lens. But this difference of standpoint — although it has had so much effect on the near object that by using a lens of twice the focus we still only get the figure the same size as before — will be too trifling compared with the distance of a really distant object to make an appreciable difference, so that, as far as the distant object is concerned, the use of the ten-inch in place of the five-inch lens has doubled its size. The effect of moving farther off and using a long-focus lens, therefore, has been to double the size of the distant objects while rendering near objects no longer than before. For pictorial work, a long-focus lens is nearly always of very great advantage.

IN SAN FRANCISCO BAY — CHRISTINE B. FLETCHER

THIRD PRIZE — MARINES

Cleaning Bottles

I HAVE a method of cleaning bottles which I picked up from a cottager in this country, and which I have never seen mentioned in any paper. It simply consists of placing in the bottle to be cleaned a small quantity of vinegar, and adding from the coal-heap a liberal amount of gritty coal and vigorously shaking. Thus treated, and rinsed out with cold water, bottles sparkle like crystal, and have no injurious properties left. It is a stubborn case that will not yield to this treatment.

H. E. TILL, in *The British Journal*.

XUM

THE CRUCIBLE
A MONTHLY DIGEST OF PHOTOGRAPHIC FACTS
With Reviews of Foreign Magazines, Progress and Investigation
Edited by A. H. BEARDSLEY

An Automatic View-Finder Mask

To overcome the difficulty caused by seeing more in the reversible view-finder than is later seen in the negative, a masking-arrangement has been devised by the use of which this trouble is entirely obviated. The masking-device is suitably attached to the finder of the camera, and is composed of two thin leaves of metal hinged together. Each of these leaves is provided with an aperture to correspond with the size and proportions of the plate or film. These apertures are arranged relatively at right angles to each other. The leaves of the masking-device are held against the sides of the view-finder by the tension of a small coil-spring.

In use, should the photographer desire to take a vertical picture, the finder is rotated so as to dispose the viewing-screen beneath that opening in the mask that disposes the longitudinal dimension of the image vertically, and the view then shown upon the screen will be exactly like that of the finished picture. For the horizontal picture, the finder is rotated to that leaf of the masking-device, whereupon the viewing-screen will be brought beneath that aperture that disposes the longitudinal dimension of the film horizontally, and the view thus given will be the same as that which will be seen in the picture. The rotation of the finder from one position to another will cause the leaves to separate and become obliquely disposed against the tension of the coil-spring; but they adjust themselves correctly against the sides of the finder as soon as it is moved to its adjusted position.

FIG. 2

FIG. 1

The Lens and Perspective

RECENT photographic exhibitions and salons show that there is a decided tendency on the part of photographers to employ lenses of too short a focus to produce pictures of satisfactory perspective. There seems to be an effort made to crowd into each picture as much as possible of the landscape whether or not it is essential to the pictorial success of the composition. A six-inch lens on a 5 x 7 plate will include too much for the eye to grasp easily at the ordinary reading-distance. True, we obtain a wide-angle view which, commercially, may be desirable, but which, pictorially, is quite superfluous. If we could study the 5 x 7 picture six inches from our eyes, we would be able to see the landscape in pleasing perspective, and it would be satisfactory to us. However, most observers are obliged to view a picture not less than ten or twelve inches from the eye, and, in consequence, the use of a ten- or twelve-inch lens on a 5 x 7 plate is more apt to produce a picture in which the main subject is clearly predominant and the perspective pleasing.

It is often believed that one lens gives better perspective than another. Let it be clearly understood that all lenses which are free of distortion and placed correctly in front of a plate vertical to the lens-axis, give the same drawing or perspective from the same point of view. The difference between a six- and ten-inch lens is that the former includes more of the view than the latter—such objects as are rendered by both lenses being identical as far as perspective is concerned.

A picture is "unnatural," not because the lens made it so, but for the reason that the human eye is unable to include as much of the view as the lens. Unfortunately, ignorance of this fact has caused many a good lens to be summarily condemned by well-intentioned purchasers. A short-focus lens used on a large-size plate appears to produce incorrect perspective. It is incorrect only because the eye, placed in the same position as the lens, cannot see the same amount of subject. This statement is emphasized purposely because of its great importance to photographers.

The use of the swing-back is quite often responsible for a picture which is actually false in perspective. However, remember that this defect should not be traced to the lens, but rather to the swing-back, which alone causes the distortion.

The solution of the problem of correct perspective or drawing lies mainly in the selection of a lens whose focal length approximates the distance between the eye and the print to be viewed. In addition, a careful study of the best point of view from which to take the picture is essential to the production of pleasing and harmonious drawing.

The subject of control over perspective is one well worth the strict attention of photographers who wish to display pictures of true merit. It is a matter of understanding one's tools and putting each one to practical use. The modern lens is a marvelous product of knowledge and skill. To use it to advantage, requires thought, attention and true technical ability. However, its mastery is not beyond any photographer who will read and apply the knowledge he obtains from reliable sources ever at his command. A. H. B.

XUM

BEGINNERS' COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA, Round Robin Guild Competition
383 Boylston Street, Boston, U. S. A.

Prizes

First Prize: Value $5.00.
Second Prize: Value $2.50.
Third Prize: Value $1.50.
Honorable Mention: Those whose work is deemed worthy of reproduction with the prize-winning pictures, or in later issues, will be given Honorable Mention.

A certificate of award, printed on parchment paper, will be sent on request.

Subject for each contest is ***"Miscellaneous"***; but only original prints are desired.

Prizes, chosen by the winner, will be awarded in photographic materials sold by any dealer or manufacturer who advertises in PHOTO-ERA, or in books.

Rules

1. This competition is open only to members of the Round Robin Guild. Membership, however, is free to all subscribers; also to regular purchasers of PHOTO-ERA on receipt of their name and address, for registration, and that of their dealer.

2. All Guild members are eligible in this competition provided they never have received a prize from PHOTO-ERA other than in the Beginners' Class. Any one who has received only Honorable Mention in the PHOTO-ERA Advanced Competition still remains eligible in the Round Robin Guild Beginners' Competition; but upon winning a prize in the Advanced Class, one cannot again participate in the Beginners' Class. Of course, beginners are at liberty to enter the Advanced Class whenever they so desire.

3. As many prints as desired, in any medium except blue-print, may be entered, but they must represent the unaided work of the competitor from start to finish, and must be artistically mounted. ***Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competition elsewhere, before Photo-Era awards are announced.*** Sepia-prints on rough paper are not suitable for reproduction, and such should be accompanied by smooth prints on P. O. P., or black-and-white paper having the same gradations and detail.

4. *Unsuccessful prints will not be returned unless return-postage at the rate of one cent for each two ounces or fraction is sent with the data.* ***Criticism on request.***

5. *Each print entered must bear the maker's name, address, Guild-number, the title of the picture and the name and month of the competition, and should be accompanied by a letter,* SENT SEPARATELY, *giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer and printing-process. Enclose return-postage in this letter. Data-blanks will be sent upon request.* ***Be sure to state on the back of every print exactly for what contest it is intended.***

6. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA, unless otherwise requested by the contestant. If suitable, they will be published in PHOTO-ERA, full credit being given.

7. Competitors are requested not to send enlargements greater in size than 8 x 10 or mounts larger than 12 x 15, unless they are packed with *double thicknesses of* ***stiff*** *corrugated board, not the flexible kind, or with thin wood-veneer.* Large packages may be sent by express very cheaply and with indemnity against loss.

Awards — Beginners' Contest
Closed October 31, 1916

First Prize: Louis R. Murray.
Second Prize: Robert P. Nute.
Third Prize: Halvor A. Caum.
Honorable Mention: James Allan, C. M. Campbell, Irving S. Lovegrove, R. B. Manck, Felix J. F. Marty, Mrs. Wilma B. McDevitt, J. O. Mesa, Charles D. Meservey, Dr. D. H. Pieter, Wm. A. Roy, Kenneth D. Smith, M. C. Still.

Special commendation is due the following workers for meritorious prints: Louis Fortriede, Jr., Charles P. Logan, Henry L. Osborn, C. A. Pierce, Mrs. H. G. Reed, Alvin Stallman, Rev. Paulus W. Weber, Elizabeth B. Wotkyns.

Why Every Beginner Should Compete

THE trouble with most competitions is that they place the beginner at a disadvantage. If advanced workers be allowed to compete, beginners have little chance to win prizes, and so quickly lose interest after a few trials.

There are two monthly competitions in which prints may be entered, with prizes commensurate with the value of the subjects likely to be entered. They are: The Round Robin Guild Competition and the PHOTO-ERA Competition. The former is the better one for a beginner to enter first, though he may, whenever it pleases him, participate in the latter. After having won a few prizes in the Beginners' Class it is time to enter prints in the PHOTO-ERA Competition for advanced workers.

As soon as one has been awarded a prize in the PHOTO-ERA Competition, he may consider himself an advanced worker, so far as PHOTO-ERA records are concerned, and after that time, naturally, he will not care to be announced as the winner of a prize in the Beginners' Class, but will prefer always to compete in the PHOTO-ERA Competition for advanced workers. In accordance with this natural impulse, it has been made a rule by the Publisher that prize-winners in the Advanced Class may not compete in the Beginners' Class.

To measure skill with other beginners tends to maintain interest in the competition every month. Competent judges select the prize-winning prints, and if one does not find his among them there is a good reason. Sending a print which failed to the Guild Editor for criticism will disclose what it was, and if the error be technical rather than artistic, a request to the Guild Editor for suggestions how to avoid the trouble will bring forth expert information. The Round Robin Guild Departments, including those of personal counsel and criticism, form an endless chain of advice and assistance if members will connect the links.

A New Use for the Bulb

WHEN out on a hike or a long trip with the camera, it is often necessary to remove the accumulation of lint and dust which collects inside the shutter and also in the bellows. Users of cameras having a bulb will find the bulb useful in this connection. It is not desirable to blow out the shutter with the breath, on account of the moisture present.— W. A. PARKS.

XUM

Preserving Negatives and Prints

THE winter-months, with less incentive to wander afield with one's camera, offer an ideal time to set one's photographic home in order. In photography — more than in most other pursuits — the importance of a "place for everything, and everything in its place" can hardly be overestimated. Especially in the dark-room is this true — where one is apt to want something quickly and there is not sufficient light to enable the eyes to do their part in locating it. It is with the preservation of negatives and prints, however, that we are chiefly concerned in this article.

How seldom does one find an amateur photographer who keeps any sort of adequate order among his negatives! If a certain film is wanted, the necessary search to unearth it is amazing. A loose lot of films in boxes and envelopes, or thrown promiscuously into a drawer, must be looked through, one by one. The film wanted is invariably at the bottom of the last package of negatives. One's prints are more apt to be kept in some semblance of order, because they are the ultimate result of our efforts, and, when shown to friends, must present a good appearance. The classifying of one's negatives is the backbone of any method of filing. Each individual will probably devise a method to suit his own convenience. They may be filed chronologically, if desired, or they may be classified by the names of the places where they were taken, and then arranged alphabetically. When many are taken in one locality, they may be divided into Street-Scenes, Buildings, Roads, Streams, Snow-Scenes, Portraits, etc., according to the individual requirements.

In looking over an accumulation of old films, to make such a classification, one will, doubtless, find many second-rate or worthless negatives. Room in the file will be economized if such are kept separate. There will be some that might just as well be destroyed; but there are others, perhaps, that represent things we can never secure again, and, although we are not likely ever to want prints of them, still we do not quite like to destroy them. Such, should be kept in a separate place, where it will not be necessary to handle them in consulting the file.

There are many patented negative-albums and filing-devices on the market. If any number of negatives are to be filed, and expense is a consideration, a home-made file answers every requirement. It should be arranged after the fashion of a card-index; but instead of cards, envelopes may be used to hold the films. Choose a box, or several boxes, a trifle wider than the length of the film, and, if they can be had with a deep cover, so that the box may be a little lower than the width of the films, they can be more readily consulted. Strong manila envelopes should be chosen, large enough to take the films easily and fit the box comfortably.

Having classified the films, one should make guides to stand a trifle above the envelopes and mark plainly the headings for each class. If there are many films taken in one place, they should also have sub-headings, with guides of a different color from the ones used for the main divisions. For instance, if many pictures have been taken about Boston, a card should be so headed, possibly in red ink; or the card could be of a distinctive color, then other white cards, or ones of the same shade headed in black, should be made out for such sub-topics as Public Buildings, Street-Scenes, The Common, Public Gardens, Fenway, Monuments, etc. This done, the negatives designated by each card should be placed behind it, each one in its envelope, plainly marked in the upper left-hand corner with the name of the building or subject represented. Any data that one wishes to preserve may be entered lower down on the envelope. If there are several views of the same thing they may be enclosed in the same envelope, unless one has plenty of room and prefers a separate envelope for each. In making out the cards, each heading should begin a trifle to the right of the heading just in front until the right-hand edge of the box is reached, then the next should begin again at the left-hand margin. If the tops of the cards are cut away, leaving only the written part to project above the envelopes, the index will be more easily read and consulted. When there is a large number of negatives, it is easier to handle them if they are kept in rather small boxes instead of in large ones. If such a file is made, and kept up-to-date, it will be the easiest thing in the world to find at once any film that is desired. However, one must keep close watch of oneself, and see that all negatives are properly filed again after use.

Prints kept simply for reference or one's own convenience, might be kept in a similar manner, but those we wish to show to friends are better arranged in portfolios or albums. This is the easiest and least satisfactory way to mount prints for exhibition. Prints are seldom all of the same color, and the mount that sets off one to advantage kills another absolutely. An album is awkward for more than one to look at at a time, and if it is desirable to look at a print from a little distance the book is hard to prop up and keep open. A better way to display prints of any pictorial value is to mount each one separately on paper of a size and color suited to the individual attractiveness of each, and then enclose them in a suitable portfolio. The making of this portfolio will give full expression to one's artistic instincts, as it may be made of almost any material, adorned with one's initials or made as ornamental as one wishes. Pictures kept in this fashion permit a dozen persons to be entertained by looking them over. Moreover, they may be stood up across the room for inspection, and in various ways are more attractive.

KATHERINE BINGHAM.

Interiors With a Hand-Camera

Too many owners of hand-cameras confine their use to snapshots only, having never taken time to investigate and experiment with the mysteries of the time-exposure. Through the colder months, when one is less active in snapshot-fields, there is good opportunity to solve the mystery and get better acquainted with one's apparatus.

It is often desired to make up a sort of souvenir of one's home, and the interiors seem, perhaps, to be beyond the powers of the small camera. It is quite possible, however, to get very satisfactory interiors with the kodak-type of instrument.

The first requisite is a firm support of some kind for the camera, either a tripod (and this is, of course, best if one intends to do much work of the kind) or a steady table, or perhaps a stepladder, as has before been suggested. The good point of the stepladder is, that it allows of so much variation in height. If the view-finder shows too much floor and not enough ceiling, a higher viewpoint is indicated; whereas if too much ceiling is visible and not enough floor, the camera should be placed lower down. Look very carefully at the image in the view-finder, and see exactly what it includes. If a part only of a chair or table is visible, move it either in or out, probably better out, for one trouble with most amateur pictures of house-interiors is that they include too much. Having located the height satisfactorily, and seen that the furniture is as well arranged as possible, the adjustment of the camera itself is the next thing to be seen to.

To increase the depth of focus so that any nearby

XUM

FIRST PRIZE
BEGINNERS' CONTEST

NATURE'S GIFT — LOUIS R. MURRAY

piece of furniture will be sharp as well as the far side of the room, set the distance on the focusing-scale at about half the distance from the nearest object included to the farther wall and then stop down the lens. If stop-numbers are on the shutter, use either 16 or 32. The latter, if the room is large, and the variation in distance, therefore, great. If the camera has simply a slide with three different sized openings, use the smallest of the three.

The question of exposure is really the hardest part of the problem, and is one on which very little help can be given, as so many things affect it. The color of the walls, the size and number of the windows, the quality of the light outside, etc., etc. One thing is apt to deceive the novice, and that is that the exposure is not shortened, but rather lengthened, by sunlight in the room. The stronger the light, the heavier the shadows, and it is for the shadows that we must expose. If the room has dark walls and only one window, the exposure, at 32, may be from four to five minutes, and a light wall with several windows may require, perhaps, thirty seconds. If one is to do much of the work, it would be a saving in the end to make several exposures of the same subjects, giving widely varying time, and make a careful record of all exposures. There are many exposure meters on the market, and any one of these will give an approximate time, which one can verify by experiment.

Having determined what time to give, set the shutter on "time" and carefully press the release so that the camera be not jarred in opening the shutter. See that no doors are slammed, or other jars met with during exposure, and when the time is up, another firm pressure closes the shutter, and the development will show how great a measure of success has been yours. Careful attention to these details is the prime requisite of the amateur-photographer who would attempt to make interiors with a hand-camera. Success in photographing interiors will enable the worker to record similar subjects associated with celebrities.

KATHERINE BINGHAM.

Handling Amateur Films

SOME one asked for a plan to finish amateur films and not get mixed up on the orders. I have used several plans, but the one I have used for the past three years is the best. When I develop films, I number them all with a lead-pencil on the end of film as I unroll it. One should be sure to write on the film-side and not on the strip of paper across the end, as the paper washes off. All envelopes are also numbered as I take the films out of them. I put all film-orders in envelopes at the time the customers bring them in. When the films are dried after the developing and washing, it is easy to find the numbers on the films and on the back of each envelope. All film-numbers I put on back of envelope. Now, in order to get all prints straight, I put the number on front of envelope for prints, and number all prints that are from films in this envelope — the first envelope No. 1, and all prints No 1; second envelope, No. 2, and all prints No. 2, and so on, after all prints are finished and dried. Sort back-side up, and sort in piles as to numbers. The rest is easy, to place in envelope with corresponding numbers. I hope that this will be useful to some one.

F. P. R., in *Association-News*.

Expeditious Service

THE following amusing incident occurred in a well-known photo-supply store, in Boston, recently. A lady, accompanied by her very little daughter, was having her camera reloaded. At the same time, she asked for a No. 1 Brownie film. The salesman turned around and ordered it to be sent up from the floor below. After waiting for considerable time, the customer became impatient and asked the salesman, busy with another customer, what had become of her Brownie film. Suddenly remembering the order, and extremely embarrassed, the salesman replied, while hemming and hawing vigorously: "Why a — yes, ah — it 's coming right up!" Greatly alarmed, the little girl exclaimed: "Oh, mamma! Did the man thwallow the film?"

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ANSWERS TO QUERIES

M. G. S.— A **convertible lens** is one of the type of the Bausch & Lomb Plastigmat, that can be used either as a doublet or each part can be used separately. The advantage of such use is that, in this way, lenses of three different focal lengths are available. The two parts give a rather short focal length, which means a fairly wide angle of view. The front-lens alone gives a narrower angle, and the rear-lens a still narrower. So that from the same spot one may obtain three different-sized images.

G. E. K.— The question of **when to stop development** is not so easily answered as it may seem, as different brands of plates and developers act differently, and the negative desired is as various as the taste of the workers. The inclination of the beginner is to take the plate out too soon. It loses a varying amount in the fixing-bath, but the loss is always considerable. As one examines the plate in development, it seems to gain in clearness up to a certain point, and then to lose detail in the lights, and many make the mistake to take it out at this point. It should be carried further, because of loss of density in fixing. When a plate is well timed, it will usually show a faint image on the glass side when it is fully developed. A little careful observation of how much is lost in fixing will soon teach the proper point to which the particular brand of plate you use should be carried.

"DANIE" ROBERT P. NUTE

SECOND PRIZE — BEGINNERS' CONTEST

E. L. W.— The **uneven density** of which you complain may have been caused by the developer not being evenly applied when the plate was first immersed. Or, it might be caused by uneven drying. If plates are left to dry over night, for instance, and, not being entirely dry in the morning, are brought into a warmer atmosphere to complete the process, a difference in density between the parts that have dried slowly and those that have been hastened is almost bound to appear. If the trouble is due to the latter cause, it can usually be removed by soaking the plate well and redrying.

H. H.— Of course, **autochromes are photographs,** because they are made through a regular photographic lens directly upon photographic sensitized plates, which latter are then developed, fixed and dried. The only difference is that an autochrome is a photograph on glass instead of on paper. To be sure, in the process of preparation, the autochrome was a negative for a brief period of time, but was then changed into a positive.

C. P. K.— **A double image on a negative is generally the result of one of two causes.** Either the camera or the sitter has moved during the exposure. A double image in a print, if the negative is sharp, indicates that the paper has moved during printing, due usually to carelessness in examining the print.

S. H. C.— **To prevent ink from spreading** on paper, put a small quantity of powdered gum arabic on the end of a knife-blade and let it dissolve thoroughly. If not enough, add a little more, until the ink acquires the proper consistency. Ink thus prepared will not blot even on coated paper.

R. A.— A **replica** is a duplicate work of art — painting or piece of statuary — by the artist *himself*, and regarded, equally with the first, as an original. A reproduction (or a copy), however well done, is not a replica. Many persons make this mistake in speaking and writing.

A. C. H.— **Whether to use dryplates, roll-films or film-packs** has always been a perplexing problem to the amateur. The only basis upon which a satisfactory decision may be reached is the one of suitability to the work in hand. The average amateur will find roll-films and film-packs eminently suited to nearly every requirement of travel, home and snapshot-photography. The portability and daylight-loading feature of roll-films and film-packs is a great convenience. On the other hand, the amateur who enjoys taking pictures because of the artistic and technical knowledge he gains from his efforts, prefers to use dryplates. Used in connection with a high-grade anastigmat lens, a dryplate is to be preferred to the use of film whenever the best possible technical result is desired. Moreover, among dryplates, there is a wide selection of color-sensitive and speed emulsions.

PRINT-CRITICISM

L. E. W.— A very difficult subject to manage. The strong contrast between the flecks of sun and the deep shade makes a spotty and disagreeable light. While very charming to observe, with the dancing lights through the leaves, it requires a very well-calculated exposure to put any of its charm on paper. The data say $\frac{1}{25}$ second exposure. If $\frac{1}{5}$ had been given, the result would have been more satisfactory.

E. T.— A well-lighted window-portrait nearly spoiled by the obtrusive background. The figure in the wall-paper, and the numerous small pictures, make a "busy" setting, that nearly puts out of notice the really attractive figure.

E. H. O.— A good pose and arrangement, but very poorly lighted. There are no shadows to give relief and roundness to the features. The light seems to come from directly behind the camera, which is about the worst quarter possible. Watch the shadow of the nose in arranging your lighting, and when it falls toward the corner of the mouth you have a "safe and sane" arrangement.

S. Y. A.— An excellent composition. The zig-zag line of the road leads the eye to the very delightful little vista in the distance, and the plane-values are excellently depicted. The dark tree on the left throws the distance back, and gives a fine balance to the whole.

A COUNTRY-ROAD — HALVOR A. CAUM

THIRD PRIZE — BEGINNERS' CONTEST

B. J. S.— A very good vista effect marred by under-exposure. As it is, the distance is rather faint, whereas the framing trees are very dark. A little more time would have enabled you to bring up the detail in the trees without clogging the lights, and given you a more even-printing negative.

J. M. F.— An admirable ploughing-scene, both technically and in composition; but alas for the interest in the camera. Had you asked the ploughman to start up his team, you could have caught them just straining into the collar, and the man's interest would have been directed toward them instead of the picture-taker.

W. H. S.— "A Road Under the Trees" is better in one respect; namely, the grass and road are in shadow, consequently their character has been preserved. The distance beyond the trees, however, is again glaringly white and without any character. As in the case of the other print, the trouble lies with the exposure, which has not been well balanced. You have exposed merely for the trees, and left the sunlit portions of the picture to take care of themselves. An exposure in a different kind of light, or at a different time of day, and properly calculated, would have yielded a more harmonizing and pleasing result.

"A Home-Portrait" is doubtless an excellent likeness of the lady; but as she is arrayed in an apparently black or, at any rate, an extremely dark garment, the lack of exposure you have given has imparted to the dress a totally black appearance — without any detail or character. The face also lacks modeling and gradation. It is clearly a case of underexposure, which can easily be corrected the next time you make a portrait of this model.

F. W. P.— Your portrait appears to be underdeveloped and slightly overprinted, but the flesh-tones are excellent. The direction of the eyes is faulty — much better had you looked into the camera rather than upward. Also, there should be more space directly behind you, in the picture-area. In other words, the matter of space should be reversed — less back of you and more in front.

H. C. K.— Your road-view is very picturesque, well spaced and technically faultless. Unfortunately, the picture is marred by a tall, ugly telegraph-pole, which is the most conspicuous object in the picture. You show much promise, and for a reliable pictorial guide, such as you seem to need, we recommend heartily, "Pictorial Composition," by Henry R. Poore, $2, sent postpaid; but combined with PHOTO-ERA for one year, the price for the two will be $3.25 instead of $3.50.

Another excellent book for your consideration is "Pictorial Landscape-Photographya," by Paul Lewis Anderson, $1.50; with PHOTO-ERA for one year, $2.25.

XUM

Calculated to give Full Shadow-Detail, at Sea-Level, 42° N. Lat.

For altitudes up to 5000 feet no change need be made. From 5000 to 8000 feet take ¾ of the time in the table. From 8000 to 12000 feet use ½ of the exposure in the table.

Exposure for average landscapes with light foreground, river-scenes, light-colored buildings, monuments, snow-scenes with trees in foreground. For use with Class 1 plates, stop F/8, or U. S. 4. For other plates, or stops, see the tables on the opposite page.

*These figures must be increased up to five times if the light is inclined to be yellow or red.
†Latitude 60° N. multiply by 3; 55° × 2; 52° × 2; 30° × ¾.
‡Latitude 60° N. multiply by 2; 55° × 2; 52° × 1½; 30° × ¾.
¶Latitude 60° N. multiply by 1¼; 55° × 1; 52° × 1; 30° × ½.
§Latitude 60° N. multiply by 1¼; 55° × 1; 52° × 1; 30° × ½.

HOUR	MONTH AND WEATHER																					
	JAN., NOV., DEC. †					FEB., OCT. ‡					MAR., APR., AUG., SEPT. ¶					MAY, JUNE, JULY §				
	Bright Sun	Hazy Sun	Diffused Light	Dull	Very Dull	Bright Sun	Hazy Sun	Diffused Light	Dull	Very Dull	Bright Sun	Hazy Sun	Diffused Light	Dull	Very Dull	Bright Sun	Hazy Sun	Diffused Light	Dull	Very Dull
11 A.M. to 1 P.M.	1/32	1/16	1/8	1/4	1/2	1/32	1/16	1/8	1/4	1/2	1/50	1/25	1/12	1/6	1/3	1/60	1/30	1/15	1/8	1/4
10–11 A.M. and 1–2 P.M.	1/25	1/12	1/6	1/3	2/3	1/25	1/12	1/6	1/3	2/3	1/40	1/20	1/10	1/5	1/2	1/60	1/30	1/15	1/8	1/4
9–10 A.M. and 2–3 P.M.	1*/12	1*/6	1*/3	2*/3	1*	1/16	1/8	1/4	1/2	1*	1/40	1/20	1/10	1/5	1/2	1/50	1/25	1/12	1/6	1/3
8–9 A.M. and 3–4 P.M.						1*/5	1*/2	1*	1 1/2*	3*	1/30	1/15	1/8	1/3	2/3	1/30	1/15	1/8	1/4	1/2
7–8 A.M. and 4–5 P.M.											1/20	1/10	1/5	1/2	3/4	1/20	1/10	1/5	1/3	2/3
6–7 A.M. and 5–6 P.M.											1*/15	1/8	1*/2	3*/4	1*	1/15	1/8	1/4	1/2	3/4
5–6 A.M. and 6–7 P.M.																1*/10	1*/5	1*/3	2*/3	1 1/2*

The exposures given are approximately correct, provided the shutter-speeds are accurately marked. In case the results are not just what you want, use the tables merely as a basis and increase or decrease the exposure to fit the conditions. Whenever possible keep the shutter-speed uniform and vary the amount of light when necessary by changing the stop. **Focal-plane shutters require only one-third of the exposures stated above.**

SUBJECTS. For other subjects, multiply the exposure for an average landscape by the number given for the class of subject.

1/8 Studies of sky and white clouds.

1/4 Open views of sea and sky; very distant landscapes; studies of rather heavy clouds; sunset- and sunrise-studies.

1/2 Open landscapes without foreground; open beach, harbor- and shipping-scenes; yachts under sail; very light-colored objects; studies of dark clouds; snow-scenes with no dark objects; most telephoto-subjects outdoors; wooded hills not far distant from lens.

2 Landscapes with medium foreground; landscapes in fog or mist; buildings showing both sunny and shady sides; well-lighted street-scenes; persons, animals and moving objects at least thirty feet away from the camera.

4 Landscapes with heavy foreground; buildings or trees occupying most of the picture; brook-scenes with heavy foliage; shipping about the docks; red-brick buildings and other dark objects; groups outdoors in the shade.

8 Portraits outdoors in the shade; very dark near objects, particularly when the image of the object nearly fills the plate and full shadow-detail is required.

16 to 48 Badly-lighted river-banks, ravines, glades and under the trees. **Wood-interiors** not open to the sky. **Average indoor-portraits** in a well-lighted room, light surroundings.

PLATES. When plates other than those in Class I are used, the exposure indicated above must be multiplied by the number given at the head of the class of plates.

For Perpetual Reference

For other stops multiply by the number in the third column

As all the figures in the table opposite are based upon the use of stop F/8, or U. S. 4, it does not appear here among the ratios for other stops.			
	U. S. 1	F/4	× 1/4
	U. S. 2	F/5.6	× 1/2
	U. S. 2.4	F/6.3	× 5/8
	U. S. 3	F/7	× 3/4
	U. S. 8	F/11	× 2
	U. S. 16	F/16	× 4
	U. S. 32	F/22	× 8
	U. S. 64	F/32	× 16

Example

The factors that determine correct exposure are, first, the strength of light; second, the amount of light and dark in the subject; third, speed of plate or film; fourth, the size of diaphragm used.

To photograph an average landscape with light foreground, in Feb., 2 to 3 P.M., bright sunshine, with plate from Class 1, R. R. Lens, stop F/8 (or U. S. 4). In the table look for "Hour," and under the column headed "Bright Sunshine," note time of exposure, 1/16 second. If a smaller stop is used, for instance, F/16, then to calculate time of exposure multiply the average time given for the F/8 stop by the number in the third column of the table for other stops, opposite the diaphragm chosen. The number opposite F/16 is 4. Multiply 1/16×4=1/4. Hence, the exposure will be 1/4 second.

For other plates consult the table of plate-speeds. If a plate from Class 1/2 be used, multiply the time given for average exposure, F/8 Class 1, by the number of the class. 1/16×1/2=1/32. Hence, the exposure will be 1/32 second.

Speeds of Plates on the American Market

Class-Numbers. No. 1, Photo-Era. No. 2, Wynne. No. 3, Watkins

Class 1/3, P. E. 156, Wy. 350, Wa.
Ilford Monarch
Lumière Sigma
Marion Record
Seed Graflex
Wellington Extreme

Class 1/2, P. E. 128, Wy. 250, Wa.
Ansco Speedex Film
Barnet Super-Speed Ortho.
Central Special
Cramer Crown
Eastman Speed-Film
Hammer Special Ex. Fast
Imperial Flashlight
Imperial Special Sensitive
Seed Gilt Edge 30
Wellington 'Xtra Speedy

Class 3/4, P. E. 120, Wy. 200, Wa.
Barnet Red Seal
Cramer Instantaneous Iso
Defender Vulcan
Ensign Film
Hammer Extra Fast, B. L.
Ilford Zenith
Paget Extra Special Rapid
Paget Ortho. Extra Special Rapid

Class 1, P. E. 111, Wy. 180, Wa.
American
Ansco Film, N. C.
Atlas Roll-Film
Barnet Extra Rapid
Barnet Ortho. Extra Rapid
Central Comet
Imperial Non-Filter
Imperial Ortho. Special Sensitive
Kodak N. C. Film
Kodoid
Lumière Film and Blue Label
Marion P. S.
Premo Film-Pack
Seed Gilt Edge 27
Standard Imperial Portrait
Standard Polychrome
Stanley Regular
Vulcan Film
Wellington Anti-Screen
Wellington Film
Wellington Speedy
Wellington Iso. Speedy
W. & W. Panchromatic

Class 1 1/4, P. E. 90, Wy. 180, Wa.
Cramer Banner X
Cramer Isonon
Cramer Spectrum
Defender Ortho.
Defender Ortho., N.-H.
Eastman Extra Rapid
Hammer Extra Fast Ortho.
Hammer Non-Halation
Hammer Non-Halation Ortho.
Seed 26x
Seed C. Ortho.
Seed L. Ortho.
Seed Non-Halation
Seed Non-Halation Ortho.
Standard Extra
Standard Orthonon

Class 1 1/2, P. E. 84, Wy. 160, Wa.
Cramer Anchor
Lumière Ortho. A
Lumière Ortho. B

Class 2, P. E. 78, Wy. 120, Wa.
Cramer Medium Iso.
Ilford Rapid Chromatic
Ilford Special Rapid
Imperial Special Rapid
Lumière Panchro. C

Class 3, P. E. 64, Wy. 90, Wa.
Barnet Medium
Barnet Ortho. Medium
Cramer Trichromatic
Hammer Fast
Ilford Chromatic
Ilford Empress
Seed 23
Stanley Commercial
Wellington Landscape

Class 5, P. E. 56, Wy. 60, Wa.
Cramer Commercial
Hammer Slow
Hammer Slow Ortho.
Wellington Ortho. Process
W. & W. Process Panchromatic

Class 8, P. E. 39, Wy. 30, Wa.
Cramer Contrast
Cramer Slow Iso.
Cramer Slow Iso. Non-Halation
Ilford Halftone
Ilford Ordinary
Seed Process

Class 100, P. E. 11, Wy. 3, Wa.
Lumière Autochrome

XUM

ON THE GROUND-GLASS

WILFRED A. FRENCH

Constructive Criticism

"Critics, like doctors, differ. The amateur-photographer who desires the approbation of a number of critics, should proceed as follows: He should make a very large print with plenty of foreground and more sky, and a whole series of interesting objects from side to side, and place it behind a mount with a small cut-out opening. Critic number one will say the sky is fatal; no sky wanted; upsets the tones. Amateur pushes print up; sky disappears. Critic number two decides on too much foreground; loudly calls for sky — would give space and air. Print shoved down accordingly; highly commended. Critic number three thinks sky and foreground nicely balanced, but mill too central, Amateur slides print sideways; just right. Critic number four does not care for mill; out of harmony; a tall tree would have been more in keeping. Another side-slip; mill off, tree on; quite artistic."—"The Walrus."

This reminds me of an incident in the history of the 1902 circulating album of the Postal Photographic Club. A new member contributed an unattractive print — a 7 x 9 landscape. Some of the members were unduly severe in their criticism of the newcomer's picture. Wrote one: "Too much sky. I suggest trimming an inch off the top." The next critic opined: "Too much space at right of tree. In addition, I recommend cutting one and one half inches off the right." His successor: "Picture now lacks distinction; cut off two inches from the left!" The next critic: "The tree at the right is black and ugly. An additional strip of two and one half inches off the right will remove it and yield a refined and panel-shaped composition." The next butcher: "An upright landscape is an abomination. I say, cut off two inches from the bottom, and you will do something!" The next in order: "Well done, brother! The proportions are now fine, 4 x 3. Begins to look promising. To help the cause along, I suggest that what remains of the baldheaded sky be eliminated. Take off two inches from the top!" The prince of executioners: "You 're all wrong, boys! Let him now trim one and one half inches from the right and ditto from the left, and the result will make us all happy!" The rest then wrote in terms of approval, for the picture had been *entirely trimmed away.*

The Result of an Obsession

Apropos of diffused definition, which broke out in the form of an epidemic a number of years ago in the amateur's camp, I recall the story of a well-known worker — some regarded him as a leader — who looked with contempt upon any photograph that possessed well-defined detail. One of his critics described him as visiting the Dutch room in a certain European art-museum and examining the paintings of Dou, Mieris, Netscher and Hondecoeter with a hand-screen covered with cheese-cloth! Only in this way could he derive any satisfaction from viewing the carefully painted pictures by these masters of detail.

A similar case developed the other evening at an illustrated lecture given by an eminent naturalist. His lantern-slides depicted wild animals photographed by flashlight at close range, and although the definition of the subjects was extremely clear — owing to the lecturer-camerist's skilful use of his "high-speed" equipment — they appeared painfully out of focus on the screen, to the great annoyance of many persons in the audience. Indeed, so distressing was the result that several spectators shut their eyes, or left the hall before the conclusion of the entertainment.

The lecturer was so absorbed in his discourse that he appeared not to notice the trouble with his illustrations, but later was criticized by several of his friends. An investigation revealed the fact that the man substituting for the regular lanternist was an amateur photographer, and an extremist in the use of a soft-focus lens he had but recently acquired. Carried away by enthusiasm for his weakness, he had purposely and deliberately, but with no evil intent, applied the soft-focus effect to the lantern-slides he was projecting by simply putting them out of focus!

Why Should Autochromes Fade?

The occasional remark of inexperienced color-photographers that Autochromes have no latitude of exposure is on a par with the assertion, sometimes made, that Autochromes fade rapidly, whether exposed to the light or not. Although many Autochromists keep specially choice plates in display-boxes, which they unfold when wishing to examine or show them, there are others who use beautiful examples of this process of color-photography as window-transparencies, and find that the colors do not change. Of course, it is not advisable that Autochromes be exposed constantly in a south-window, to direct sunlight, where almost any dye-stained material must in time give way.

Yet I still have — and I always show it with great satisfaction — the beautiful Autochrome portrait of Monsieur ——, of Lyons, France, made in 1907 by the Lumières. It was presented to me by M. Antoine Lumière, as a souvenir of the dinner given in his honor, at the Hotel Brunswick, Boston, November 1, 1907 — the memorable year when the Lumières astounded the world with their invention, and its immediate and successful application, of the Autochrome process of color-photography. Naturally, I prize this Autochrome portrait very highly, and frequently look at it to admire the wondrously luminous and delicate coloring of the flesh-tints, the eyes and the head, and also the brilliant red-orange and yellow robe thrown over the shoulder and chest, as if to glorify the beauty of the achievement. In every detail and nuance, the colors are just as fresh and true as they were when the genial chevalier of the Legion of Honor placed the treasure into my welcoming hands.

Practical Evidence

"I gave that youngster of mine a toy printing-press, a steam-engine, a camera, a box of dryplates and some other things to find out whether his tastes were artistic, mechanical, literary or what — but the test did n't work."

"Why, what did he do with them?"

"Smashed them all up."

"Why, man, it 's as clear as day — he 's going to be a furniture mover."—*Exchange.*

OUR ILLUSTRATIONS

WILFRED A. FRENCH

In view of the increasing interest in our own native scenery, it is but natural that photographic publications give prominence to specially beautiful pictures of that character. The view of the Cascade Mountains, by the eminent photographer A. H. Barnes, which decorates our front-cover this month, and is repeated on page 4, reveals the physical aspect of that range — a continuation in Oregon of the Sierra Nevadas of California — in a singularly striking way, and better than would a view in summer. The name is derived from the cascades of the Columbia, which are formed where the river breaks through the Cascade Range. Mr. Barnes enjoys an enviable reputation as a skilled photographer of the mountain-ranges of the Pacific, and the present picture is one of typical excellence. Data: March 1, 1916, 8 A.M.; direct sunlight; 4 x 5 Poco; 6-inch Oynar, F/6; stop, F/16; $\frac{1}{5}$ second; Cramer Inst. Iso. Double-Coated; eiko-hydro; enlarged on Eastman Bromide.

The portrait of John J. Enneking, the eminent Boston artist, recently deceased, occupies the place of honor in this issue. It is an exceedingly faithful though not altogether comprehensive likeness. Mr. Garo has interpreted the man rather than the artist, and his subject, while possessed of varied gifts, was scrupulously honest, yet wary and astute, as may be noted by the penetrating look in the eyes. Though an idealist in his art, Mr. Enneking had correct and well-defined business-instincts, and, had he chosen to forsake the brush, he would have been a successful merchant or financier. In fact, he united with his strong artistic temperament and creative power, a rare degree of business-sagacity, which enabled him to accumulate considerable wealth. Mr. Enneking, as an artist, and his appreciation of photography as an art, I have sketched in an editorial.

His interest in pictorial photography was very marked, and not longer ago than last summer he wished that he had the opportunity to talk to an aggregation of pictorial workers, stating his sympathy with their activities, and also to point out where they could improve the treatment of their themes by excluding all that tended to detract from the principal point of interest. In Enneking, pictorial photography has lost one of its staunchest friends, a true lover of the beautiful and noble creations made possible by means of the camera; and whenever an amateur gazes upon an Enneking canvas, he will find there the exemplification of the great artist's ideals, and what, in the form of helpful and friendly criticism, they meant to the appreciative student — painter or photographer. Data: July, 1916, 10 A.M.; in studio; 18-inch Verito, at full opening; 8 x 10 plate; pyro; 8 x 10 W. & C. Platinotype print.

The bleakness of an autumn-landscape is well expressed in "Windswept," page 5. Though the clouds, overhead, are a fitting and natural part of the scene, they are a bit too strong, and tend to make the picture appear top-heavy. No data are at hand, but it is safe to say that too deep a color-screen was used, which would tend toward over-correction. The lonely tree seems to say that the wind is blowing a bit strong.

Another forceful portrait by Mr. Garo, page 7! The subject is a man of many talents — artist, traveler, explorer, scientist, historian, lecturer, photographer, athlete. As one of his friends said pointedly, "A man with such a wealth of talents needs to be an athlete to defend it!" And the truth is, Mr. Furlong excels in each of his accomplishments. He has recently concluded a successful lecture-tour, and is preparing to accompany an important scientific expedition, as ethnologist, in the interest of the Smithsonian Institution, to the French Congo, in the spring. Dressed in explorer's costume, Mr. Furlong presents a typical likeness of himself. He stands revealed as a man of intellect, vitality, courage and determination. No small degree of the success of this portrait is due to the artist, a prince of interpreters — John Garo. Data: 18-inch Voigtländer, at full opening; July, 10.30; bright studio-light; 2 sec.

The winter-vista, page 11, is from the well-filled cabinets of G. R. Ballance, and bears the impress of his familiar artistic skill. No data.

One of the most picturesque of small waterfalls is the dainty "Hanging-Rock Falls," page 13. As an accomplished camerist, Mr. DeBevoise is known to subscribers to PHOTO-ERA. The present picture is one of his best contributions to these pages. The point of view, the perspective and tone-values, are alike admirable. Data: August, 11 A.M.; brilliant sunlight; 5 x 7 Korona camera; R. R. lens; stop, U. S. 16; no color-screen; $\frac{1}{50}$ second; Hammer Special; pyro in tank; direct print on Azo A Hard; hypo-alum toned.

The numerous views of the sea, whether at sunrise or sunset, made by Mr. Pertuch always suggest a calm and restful feeling, in contrast to the agitated waters depicted by other pictorialists. I find that the predilection in favor of either kind of presentation is largely a matter of temperament, of course assuming that I am not mistaken as to the personality of the camerist in each case. If this little digressing point is of interest to any one, let him investigate. Mr. Pertuch's present sunset-view, page 15, is most pleasing, and, as a composition, it excels in the harmonious balance of chiaroscuro. Data: July; 4 x 5 Premo; 6-inch Collinear, at F/8; $\frac{1}{10}$ second; Cramer Iso; pyro.

That one need not always go far from home to set up his camera, is shown by Mr. Ludlum's exceedingly effective bit of winter, page 17. The line of snow beginning at the bottom-step and winding its way around the potted plant and along the top of the wall has been perceived by the observant eye of a true picture-maker. It is an admirable pictorial design. Data: December; bright and cloudy; $\frac{1}{25}$ second; 5 x 7 Premo; $6\frac{3}{4}$-inch Velostigmat, at F/6.3; Polychrome plate; pyro; glossy Cyko soft print; Duratol.

Rudolf Eickemeyer's rural landscape, page 18, a group of sheep in an ideal landscape, is what one may expect from a pastmaster — not so long ago one of America's pictorialists, and then relegated to the rank of a professional portraitist. All play and little or no bread-and-butter work would not do for him, and hence the change. Nevertheless, he finds diversion in an occasional outing, and the result is a picture in his own artistic vein. Whether the present performance is above criticism, is something of a question. Personally, I feel that the sheep are too low in the picture-space. If this be true, the fault can be corrected easily by trimming about half an inch off the top. But I do

XUM

not object to the animals being exactly in the middle of the picture. Ordinarily, such a thing is to be avoided; but all depends on how the whole subject is managed — including the character of the general pictorial interest. No data.

Carl Hague contributes a superb and typical scene along the Pacific Coast — broad ripples softly advancing over the smooth sand along the shore, and, far off in the distance, ranges of low-lying hills topped by banks of clouds. Page 19. The whole pictorial design is one of extreme beauty. A notable point in this graceful composition is the portrayal of atmospheric perspective. Data: March, 12.30 P.M.; light, extremely brilliant; 4 x 5 Conley camera; 6-inch Zeiss-Kodak lens, at F/8; 3-time color-screen; $\frac{1}{10}$ second; 4 x 5 Standard Orthonon; print on Enlarging Cyko.

One of the justly admired prints in a New York spring-exhibition, of last year, was "The Water-Nymph," by Miss Katharine Brucherseifer, reproduced on page 21. In my humble opinion, the figure, slowly advancing in the shallow waters along the shore, exemplifies the extreme in grace and beauty of movement. The illumination is delicate and consistent, and the setting eminently fitting and effective. The whole scene is imaginative, and is filled with refined, poetic beauty. The proportions are perfect, and the artistic treatment deserves the highest praise.

We welcome Dr. D. J. Ruzicka's return as a pictorial contributor with a feeling of intense satisfaction. His interpretation of a winter's day in the Bronx, page 23, at once wins our admiration for the beauty, power and fidelity of its performance. The sense of being alone in these still and snow-filled woods is akin to reality, and the eye delights to follow the play of sunlight everywhere. Guided by his unerring artistic instinct, Dr. Ruzicka gives his pictures perfect proportions, which mean so much in the pictorial design. Data: January, 3.30 P.M.; sunlight; $\frac{1}{2}$ second; 5 x 7 Orthonon; Rytol; 5 x 7 Korona camera; 11-inch R. R. lens; stop, F/16; 3-time Ideal color-screen; 5 x 7 Platinum print.

In "Winter-Evening," page 25, Dr. F. F. Sornberger evinces his customary sympathetic touch in handling his subject. Indeed, he resembles Dr. Ruzicka in the approach and treatment of his theme. In the case of either worker, one is always sure of the free expression of the feelings of a nature-lover, who unconsciously reveals his inner self in his pictures, and for which we all love him. In the language of the immortal bard, "One touch of nature makes the whole world kin." Data: January, 3.30 P.M.; faint sunlight; snowing lightly; $\frac{1}{25}$ second; Cramer Iso; Rodinal; 5 x 7 Century camera; Goerz Dagor (rear-combination); 16-inch focus; at F/16; Cyko print.

PHOTO-ERA readers know W. R. Bradford, the busy cartoonist of a big newspaper, as a master-photographer with a penchant for humorous portraits and peerless still-life subjects. One evening, as he emerged from the office of his daily grind, he was struck by the strange beauty of an illuminated street-scene. Quicker than thought he set up his "box" and "let her go" for 90 seconds. The uninitiated will shake their heads at the temerity of the man, while the expert will nod approvingly. No; it 's not a view on the Grand Canal, but a rainy night in Quaker City, and mighty well done. The points are all good and very obvious. Yes; it 's perfectly great and hard to beat! Data: 4 x 5 Cycle Graphic; Cooke lens, at F/11; Marion Record plate, unbacked; Zerbe's pryo-acetone for "knocking" halation, which Mr. Bradford jocosely describes as "some method;" 8 x 10 American Platinum print, warm black, from enlarged negative.

Advanced Workers' Competition

FEW pictorialists have studied the subject of marine-photography, and have labored in that fascinating and prolific field with camera and pen, as has William S. Davis. Indeed, he has come to be regarded as an authority in this important branch. The pages of PHOTO-ERA, for a number of years past, bear testimony to his ability as author-photographer. In the present instance, his first-prize picture, page 33, is an artistic achievement, and worthy to take its place beside the work of a first-class marine-painter, monochrome though it be. Mr. Davis' aim is not to arrest motion — almost any one with a high-speed equipment can do that — but to convey a sense of motion without, however, sacrificing the outlines (drawing) of the moving body or object. Workers ambitious to excel in marine-work should read Mr. Davis' illustrated papers on this subject. They are listed in the PHOTO-ERA Reference Library, begun in the June, 1916, issue. Data: October, 3.10 P.M.; good sunshine; $\frac{1}{25}$ second; $2\frac{1}{4}$ x $3\frac{1}{4}$ pocket-camera; R. R. lens, at F/8; Ingento A ray-filter; Vulcan film; print enlarged on Velours Black.

The majesty of a sailing yacht has been interpreted in a very felicitous manner by Franklin I. Jordan, page 34. The pictorial scheme shows admirable artistic judgment, as we note the placement of the principal object, the proportions and the vanishing atmospheric perspective. The tone in the original print is soft and pleasing. Data: August, 2 P.M.; hazy sunlight; $3\frac{1}{4}$ x $4\frac{1}{4}$ Sylvar camera; 5-inch anastigmat, at F/11; $\frac{1}{10}$ second; Wellington Anti-Screen; pyro; Enlarging Cyko.

The Beginners' Competition

THE making of an artistic and really consistent and harmonious still-life remains a problem to most workers, whether in painting or photography. This subject I have made virtually my own for some time past; but several extremely successful performances in this line stand to the credit of artist-photographers, viz., W. R. Bradford, W. S. Davis and H. R. Decker, and have appeared, periodically, in these pages. A creditable attempt in this direction is by Louis R. Murray, page 39. The theme and its arrangement are not new, it is true; but Mr. Murray has tried to get away from the extremely hackneyed style of arrangement. In the matter of lighting, too, he has made a gain. Now, if the several groups of the fruit were to be reduced to one, or even to two of unequal size, and placed and lighted properly, without changing the position of the loaded basket, the element of artistic simplicity would come into play, and with it a very promising result. Data: October 15, 1916, 2.30 P.M.; north window; dull day; 2 minutes; $9\frac{1}{2}$-inch B. & L. R. R. lens; stop, U. S. 8; Ingento C ray-filter; Standard Orthonon; E. K. pyro-soda in 20-minute tank; enlarged on P. M. C. Bromide.

Portraiture is usually, and, quite naturally, the hardest nut for the average amateur to crack; but occasionally one meets a very successful attempt, which, as in the case of Robert P. Nute, page 40, is no hazarded snapshot. Special credit is due to Mr. Nute for having made his portrait in the open and against the light. The light is well distributed, there is an absence of false and distressing shadows and no objectionable contrast. Data: "Danie," the Cumberland guide; at Cumberland Falls; about September 1, 1916; rainy, subject on porch; 5 x 7 Century view-camera; 14-inch element of an $8\frac{1}{2}$-inch Turner-Reich lens; no stop; 1 second; plate developed with pyro; print on Artura Iris.

(*Continued on page 48*)

EVENTS OF THE MONTH

Announcements and Reports of Club and Association Meetings, Exhibitions and Conventions are solicited for publication

Photo-Era Increases Its Price

In consequence of the extraordinary rise in the cost of coated paper, printing and halftones — due to the European war — the Publisher has been obliged to advance the subscription-price of Photo-Era from $1.50 to $2.00; single copy, from 15 cents to 20 cents.

The slight increase in price will go into effect March 1, 1917, and subscriptions received before that date will be accorded the old rate, viz., $1.50 a year; clubbing-price, $1.25.

Whereas the slight increase of fifty cents may not mean much to the individual subscriber, in the aggregate it is vitally important to the Publisher, as it will enable him to help meet the greatly increased expenses of publishing Photo-Era without diminishing its many excellences that have given it the high reputation it enjoys among photographic magazines.

Annual Exhibition of the Union Camera Club

The annual show restricted to the members of the B. Y. M. C. U. Camera Club, 48 Boylston Street, Boston, was held in the club's room, December 7 and 8, 1916. The judges, Frederick W. Horsman, Frederick W. Allen and Florence Maynard, made the following awards. Landscapes: first prize, Arthur Hammond; second, T. W. Gary. Portraits: first prize, Arthur Hammond; second, Louis Astrella. Marines: first prize, F. W. Hill; second, C. E. Dodge. Genres: first prize, Chester Grillo; second, Louis Astrella. General: first prize, G. H. Seelig; second, Charles G. Wells.

There was unmistakable evidence of serious and painstaking endeavor to produce pictures of a pleasing artistic character, but in most cases there seemed to be an inadequate comprehension of the principles of simplicity and unity in composition. The tendency seemed to be — notably in the genre-class — towards an excess of picture-material, when restraint in that direction is more conducive to good results. The principle of balance by light and shade is another study neglected by most of the exhibitors, two or more prominent and strongly lighted objects in one small picture-area being unable to express a coherent story.

What seems to be needed is a series of heart-to-heart talks by a capable and sympathetic instructor on pictorial photography. It is not enough to have as a fellow-exhibitor an artistic worker like Arthur Hammond, who naturally captures the leading prizes, year after year. To exert a really beneficial influence, Mr. Hammond must not only be constantly at his best — which he is not — but he must, himself, show evidences of marked and steady advance in his art. Rather should the members of this club strike out independently, each for himself, with his mind and heart set on a high standard, and guided by sound and earnest study of the best in pictorial art. Notable artistic excellence in motive and technique distinguished the following prints: "Scarborough Bridge," C. E. Dodge; "Peaks and Pines," Edwin C. Howard, and "Florida Sunset," F. W. Hill — among the landscapes; "The First-Born," Louis Astrella, and "Getting Ready for Business," Chester Grillo — in the genre-class; portrait of an artist in his studio, Arthur Hammond; view of a big steamer at her dock and Custom-House tower in the distance, C. E. Hill, and "Sunday Afternoon," by Akasu — among the Marines; "A Morning Gallop," G. H. Seelig; "Harvard Bridge at Early Evening" (by moonlight), Charles G. Wells; "The Woolworth Building," Ernest H. Washburn, and "Waiting for the Last Boat," Chas. G. Wells. The exhibit comprised about one hundred pictures.

The New Technicolor Process

The new color-process developed for the Technicolor Motion-Picture Corporation by a firm of research-engineers, Kalmus, Comstock & Wescott, Inc., bids fair to become an important commercial development. The pictures are capable of showing rapid motion without the well-known color-fringe phenomenon; and since they do not depend on physiological synthesis for their color-effects, there is no unnatural eye-fatigue.

Several thousand feet of film have been privately exhibited in Boston, and have met unqualified approval from a large number of critical observers. The company is now taking pictures in the vicinity of Jacksonville, Fla., to be used in the production of a five-reel feature which will be ready for the public before many weeks.

A particularly important innovation which these engineers have instituted is a portable film-laboratory and development-plant built into a Pullman car. This results in a material advantage through the fact that hitherto a great deal of inconvenience has been suffered on account of the necessity to send the films for development to a distance from the place at which they are taken. Faults in the film have therefore been discovered too late for easy correction. With the new portable plant on the scene of production, the final film can be examined on the screen almost immediately after it is taken, so that it is quite convenient to retake any portions that may require it.

The plant is also particularly impressive on account of the completeness of its automatic control. Practically nothing, from start to finish, is left to the guesswork of the operators. Machines invented for the purpose apply all wet treatment to the film; the camera is motor-operated at exactly the desired speed; and the exposure allowed the negative is determined by a scientific light-measuring instrument of new design.

As regards personnel, C. A. Willatt, well known as "Doc" Willatt in the motion-picture world, of which he is one of the leading experts, is director of the department of production. The technical staff includes Dr. Herbert T. Kalmus, former director of one of the Canadian government research-laboratories, Dr. Daniel F. Comstock, of the Massachusetts Institute of Technology, and Prof. E. J. Wall, the well-known photographic expert. The equipment is in charge of W. B. Wescott.

We understand that the Technicolor Company is amply financed, and that rapid commercial development may be expected.

An Old Master

Miss Manyears — "Yes, that was painted of me when I was a little girl."

Colonel Blunt — "Is it a Rubens or a Rembrandt?"

London Opinion.

Charles Wesley Hearn's New Studio

CHARLES WESLEY HEARN, the veteran photographer, and author of one of the early standard works on photographic printing (still unequaled for its practical value), former president of the P. A. of A. and the P. A. of N. E., an artist-photographer of exceptional ability, has removed from his restricted quarters at 729 Boylston Street, known as the Lenox Studio, Boston, Mass., to 2832 Washington Street, between Dudley Street and Egleston Square, Boston, Mass. Mr. Hearn's new studio is an exceedingly artistic-looking two-story building, very eminently adapted to an artist's needs, also located very conveniently near electric and elevated car-lines, where Mr. Hearn is prepared to give unusually prompt service, and to maintain his well-known high standard of artistic and technical excellence.

The Fifth International Photographic Salon

THE catalog of the Fifth International Photographic Salon, held at the Palace Hotel, San Francisco, under the auspices of the California Camera Club, November 25 to December 2, 1916, has been received. It is a quarto size brochure, deep-orange cover, and contains a list of officers of the club, a list of exhibitors, and halftone reproductions of sixteen selected prints in the exhibition by Hilda Altschul, A. D. Chaffee, T. J. Chorley, E. L. Crandall, John Paul Edwards, W. G. Fitz, Forman Hanna, Harold L. Harvey, Frances MacCulloch, Hirvey W. Minns, W. H. Rabe, H. W. Schonewolf, Edward D. Taylor and Ernest Williams. The catalog shows enterprise and taste in its preparation, and is a credit to the committee in charge.

Garo's Multiple Gum-Print of John J. Enneking

AMONG the remarkable multiple bi-gum portraits of eminent Bostonians shown by John H. Garo, in the Boston Art Club art-gallery last fall, was one of the late John J. Enneking. In addition to its conspicuously artistic value, the picture was recognized by relatives and friends as the best likeness of the artist in existence.

In view of Mr. Enneking's zealous devotion to the best interest of the Boston Art Club, a number of the great artist's admirers, and members of the club, purchased the portrait of Mr. Garo — valued by him at $200 — and presented it to the club. It now occupies a prominent place in the Artists' Room.

Rau Art-Studios, Inc.

THE Rau Art-Studios, Inc., a corporation organized under the laws of the State of Delaware, has purchased and taken over on December 1, 1916, the entire plant and fixtures, equipment, stock and good-will of the photographic business heretofore conducted by William H. Rau, at No. 238 South Camac Street, Philadelphia. Hereafter, the business will be conducted by this corporation at the same address, under the personal management and direction of Mr. Rau, as president and general manager.

Convention of P. P. S. of New York

THE Professional Photographers' Society of New York will hold its thirteenth annual convention, February 26, 27 and 28, 1917, at the Hotel McAlpin, New York City. There is every promise of an interesting convention.

Our Illustrations

(*Continued from page 46*)

The view of a country-road, page 41, is as attractive as one could wish. The lines are very pleasing, the values good and the atmospheric quality quite delightful. The only fault in this otherwise delightful picture is the extremely dark place in the upper left-hand corner. Data: October, 10.30 A.M.; hazy sunlight; Wollensak R. R. lens, F/8; 7½-inch focus; used wide open; ½ second; Standard Orthonon; Celeris developer; print on Artura Iris, Grade A; developed with Kodelon.

The Photographic Club of Baltimore City

The following schedule of lectures will be given at the Club on the evenings noted below:

Jan. 16. How to make Carbon- and Gum-Prints. By Messrs. Neeson and Frittita.

Jan. 30. Another talk on the subject of lantern-slides. By Mr. Schapiro. He will go into the subject more extensively at this time and show how to make good Interchange-Slides.

Feb. 13. Another talk on making enlargements. Also, in the near future, a practical demonstration on the use of the various styles of Graflex Cameras by a representative of Messrs. Folmer & Schwing.

The Annual Pittsburgh Salon

THE Annual Pittsburgh Salon of Pictorial Photography will be held in the Art-Galleries of the Carnegie Institute, Pittsburgh, Pa., March 1 to 31, 1917, inclusive.

All prints submitted will be passed upon by an impartial and thoroughly competent Committee of Selection. Prints that possess the highest merits in artistic expression and execution will be hung.

The Pittsburgh Salon is distinctive in its annual exhibitions, being held in the spacious galleries of the Carnegie Institute.

Entry-blanks, containing full information and conditions of the Salon, may be obtained by addressing C. E. Beeson, Secretary, 1900 Frick Building, Pittsburgh, Pa.

Last day of entry, Saturday, February 10, 1917.

Business Waiting To Be Secured

THE case of the amateur photographer, whose heart-rending cry is how to recoup himself for the expense of a roll-film or a box of plates, is no less pathetic than that of the professional who sits mourning in his studio because business is dull and the cash-drawer is empty. The sittings-solicitor has become a bore, and is *persona non grata* in nearly every community. But soliciting for sittings in a high-class studio can be done in several refined and effective ways. Two prominent members of a certain social club, in Boston, died recently, and not a photograph of either could be discovered by the relatives and the local daily press. Neither of these two wealthy citizens — over eighty years old at his death — had ever been in a photographer's studio. Nor was as much as a "snapshot" in existence. In this same club, there are other aged members who have never sat for their photographs. Whose fault is it?

George W. Woodward

GEORGE W. WOODWARD, secretary and director of Sprague-Hathaway Company, Somerville, Mass., passed away at his home, 79 College Avenue, December 18, of heart-failure. Mr. Woodward was universally respected for his high sense of honor and noble impulses. He will be greatly missed.

WITH THE TRADE

New Eastman Publications

We have received copies of four new booklets issued by the Eastman Kodak Company which are unusually attractive and valuable. One describes the Kodak Bank plan to obtain a Kodak, Brownie or Premo Camera. Another announces the new No. 00 Cartridge Premo, costing 75 cents, and made especially to provide fun for children and young people. A third shows the adaptability of the Kodak to winter-photography. The fourth is devoted to Premo Cameras and, typographically, is one of the best booklets that we have seen. All inquiries for these new publications will receive immediate attention.

H. M. Bennett Visits Photo-Era

It was with genuine pleasure that the Publisher greeted Mr. H. M. Bennett, president of the International Photo-Sales Corporation, of New York, during his recent visit to Boston. We were privileged to examine a number of excellent prints and enlargements made on Artatone Paper. Without doubt, Artatone is one of the most satisfactory and artistic of printing-mediums, and eminently suited to pictures for home-decoration or gifts of an exclusive character. We were also impressed by the optimism shown by Mr. Bennett regarding photographic conditions in general, and we believe his example to be one worthy of emulation.

Flooding American Markets with Post-Bellum German Goods

According to a report printed in the American press, and as coming from Berlin, the American Association of Commerce and Trade of Berlin has been investigating the rumors circulated abroad to the effect that Germany is preparing to dump quantities of cheap goods in America after the close of the war. The Association's *Weekly Report* finds that there is no surplus labor in Germany that could be diverted and produce the goods in question. Moreover, the supply of labor is insufficient to produce goods for home-consumption in view of the production of the vast quantities of war-materials needed, and wages of all workers have increased abnormally in proportion to the increased cost of living. Beyond supplying the actual needs of the government and civilians, manufacturers of steel, iron, hardware, household-goods and many export-articles of iron and steel are disregarding virtually all orders from neutral countries.

The same is true of dyestuffs, whose prices have risen considerably during the war. Makers are producing in larger proportion, however, chemicals, drugs and explosives. The entire range of textile-industries, which constitute a very large portion of Germany's economic activity, is now wholly eliminated from manufacture for export, owing to lack of the raw materials. Supplies of these are so short that they were long ago confiscated by the Government in order to conserve them for military requirements, and only such small quantities are liberated for the requirements of the civilian population as are absolutely necessary. How far all this is true of photographic products, is not stated. But why borrow trouble?

Ansco V. P. No. 0 Correction

An inaccuracy occurred in the specifications of the Ansco V. P. No. 0 in Ansco Company's advertisement of this model in the December number. This camera is furnished with Actus shutter and Modico Anastigmat lens, F/7.5, at $15, and with Extraspeed Bionic shutter and Ansco Anastigmat lens, F/6.3, at $25.

Prices of Photographic Chemicals

According to the *Photographic Dealer* (London), photographic chemicals are still a bit "jumpy" in prices; but this is not to be wondered at, having regard to the changing markets. Hydroquinone is not being manufactured in England at present, and virtually the only source of supply is America. There (in America) they seem to play all sorts of tricks with the prices, so that it is necessary to exercise more than ordinary caution in purchasing that product.

Photograms for 1916

Messrs. Tennant & Ward, the American agents, inform us that the popular English pictorial annual, "Photograms for 1916," will be ready for delivery about the end of January, but with a certain degree of uncertainty. The prices will be — cloth, $1.75; paper, $1.25. Postage extra.

Money for Advertising

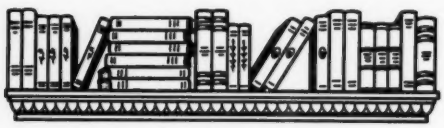
This is the time when advertisers are busy preparing another excuse for not wishing to place an advertising-contract. Heretofore it has been, "Our advertising-appropriation has just been exhausted." Some unimportant advertisers have not even had an advertising-appropriation.

Selling Photographic Magazines

We have before us a letter from a dealer-friend who asks us to discontinue sending him Photo-Era because it does not sell readily in his store. He hastens to explain that, personally, he believes Photo-Era to be one of the best photographic magazines published; *but his customers do not ask for it*, and on that account he prefers to use his counter-space to better advantage. If this dealer pursued the same policy with regard to all the goods in his store, we do not believe that he would be as successful as he is.

The point of vital importance, which many dealers overlook, is that to push photographic magazines stimulates the customer's desire for the very goods which the dealer carries. The intelligent salesman should know each subject which his customer considers interesting, and it should be his duty and pleasure to call the customer's attention to such current articles in the photographic magazines as will help the amateur directly in his work. We have abundant proof that when photographic magazines are pushed zealously, *they do sell extremely well*, to the mutual profit of dealer, amateur and publisher.

"Th' ranks o' th' down and out are filled with men who nailed a horse shoe over th' door instead o' puttin' an ad in th' newspaper."—*"Abe" Martin.*



BOOK-REVIEWS

Books reviewed in this magazine, or any others our readers may desire, will be furnished by us at the lowest market-prices. Send for our list of approved books.

THE AMERICAN ANNUAL OF PHOTOGRAPHY, 1917. Vol. XXXI, edited by Percy Y. Howe. Illustrated. Price, paper, $1.00; cloth, $1.50. Sole sales-agents: George Murphy, Inc., 57 East 9th Street, New York.

This, the thirty-third year of this popular American annual, finds the publication looking as prosperous as ever, with attractive material of benefit to all. Among the numerous illustrated practical papers are, "Marine Subjects," Wm. S. Davis; "Kinematograph-Hints," A. Lockett; "Gallery-Lighting," Sigismund Blumann; "Mastering the Anastigmat Lens," A. H. Beardsley; "Photographic Portraiture of Men," T. W. Kilmer; "Needlehole Architectural Photography," A. M. Sutton, M.D.; "Waterfall-Photography," Harry G. Phister; "An Adjustable Copying-Stand," Henry F. Raess; "The Focal-Plane Shutter," A. L. Gareis; "Butterfly-Photography," Dr. R. W. Shufeldt; "Stereoscopic Photography," E. J. Wall, F.R.P.S.; "Color-Toning Bromides," A. T. Lakin, M.D.; "Autochromes," David J. Shehan, and "Halation Corrected in Development," Geo. D. Jopson.

The illustrations are profuse and varied. The most strikingly excellent are portraits by Dr. Kilmer, Belle Johnson, Wm. Shewell Ellis, Helmar K. Lerski, John W. Gillies, Knaffl & Brother, S. W. Stump, Louis Fleckenstein, R. Duehrkoop, O. C. Conkling, Claude M. Simpson, Ira D. Schwarz; landscapes by Theodore Eitel, E. D. Leppert, John M. Whitehead, Rupert Bridge, Geo. L. Seymour, Harold Cazneaux, S. H. Willard and Karl H. Kattelman; marines by Harry D. Williar and Wm. S. Davis; genres by W. B. Pointer, E. H. Weston, Warren R. Laity and Kate Smith; nature-subjects (butterflies) by Dr. R. W. Shufeldt, and waterfalls by Harry G. Phister. Useful tables for important technical work, and a list of American photographic societies, form the concluding pages of the book.

THE WOODCARVER OF SALEM — Samuel McIntire, His Life and Work. By Frank Cousins and Phil M. Riley. 202 illustrations. Octavo, decorated cloth, gilt top. Subscription-price, $7.50. Edition limited to 900 copies. Boston: Little, Brown & Company.

That Salem, Mass., was at one time the city of education and culture par excellence in New England, is evidenced by the delightfully proportioned and admirably executed houses of her prosperous citizens in the days of our early presidents. In supplying the present unprecedented demand for designs for residences in the so-called "Colonial" style, America's leading architects turn for inspiration to Salem's domestic architecture — the homes erected and decorated by Samuel McIntire, the "Woodcarver of Salem." The original motives of this chaste and pleasing style, with its classic details in frieze, mantel, entablature and cornice, were derived from the Georgian style, in England, where Jones, Wren, Gibbons and Adam excelled in its highest development; but in adapting them to his needs, Samuel McIntire surpassed these brilliant exemplars by his artistic individuality. His designs were more classic and chaste, more original and imaginative and incomparably more interesting. He was a carver of surpassing skill, a designer of classic tastes and an architect of sound judgment. His versatile genius is shown conspicuously in the Pierce-Johonnot-Nichols House, the Benjamin Crowninshield House, Assembly Hall, the Peabody-Silsbee House, "Oak Hill" and other old-time residences of historic old Salem. Our prominent architects acknowledge the debt they owe to Samuel McIntire, and praise the freedom, refinement, lightness and graceful dignity of his woodwork. The casual visitor to Salem is impressed at once by the hospitable doorways of the McIntire houses; and the refined, chaste and ingratiating beauty of the interiors — as described by pen and photograph in "The Woodcarver of Salem" — will be sure to attract many discriminating art-lovers from all parts of the country. The photographs of Mr. Cousins are excellent, and admirably adapted to the needs of the architect. The text, devoted to Salem's architecture, the life and work of Samuel McIntire and a detailed description of the principal McIntire houses, reveals a writer of delightful clearness and force, and of convincing authority. Mr. Riley has performed a conspicuous service for the architect and the layman, and the people of Salem cannot but appreciate this special distinction accorded their city. The volume is a superb example of the bookbinder's art in its perfect typography and tasteful, dignified exterior. The edition was entirely taken up on day of publication — a rare event in the publishing-business. Fortunate he who was able to procure a copy!

Photographic Reading and Discussion

IN baseball-parlance, we often hear of the "winter-league," which settles the pros and cons of the baseball-world by reading and discussion around the stove in a country-store. To those interested in the great national game, this reading and discussion constitutes a veritable baseball-education. In the spring, the graduate is a walking encyclopedia of everything pertaining to baseball and those who play it.

Why could not amateur and professional photographers gather about the genial stove — figuratively speaking — to discuss and read the many interesting books and papers on photography? It is the spontaneity of such informal meetings that gives them a life and interest often lacking in clubs and at exhibitions. It is virtually certain that the information obtained so pleasantly and informally would not be quite so easily forgotten as that obtained from a formal lecture. Needless to say, the lecture, club and exhibition have their places of value — likewise the informal, unannounced and spontaneous "swapping" of experiences.

For some unaccountable reason amateur and professional photographers have the impression that books on photography are too technical. True, many of them are; but, likewise, it is true that many books are interesting and easily understood. Half an hour each day devoted to a reliable book on photography or art would supplement and increase the technical knowledge of amateur and professional alike. The dull winter-months offer the best opportunity to gather the information which may be a vital factor in the photographic success of the approaching summer's work. Those who read this may agree with the idea expressed; but it requires more than mere approval to gain the knowledge that lies at hand.

Low Cost of Living

Little housekeeper, to her friend at cooking-school — "Living-expenses in our family are very low. You see, my big brother makes mince-meat and kindling-wood of all who dare disagree with him."

XUM

RECENT PHOTO-PATENTS

Reported by NORMAN T. WHITAKER

THE following patents are reported expressly for the PHOTO-ERA MAGAZINE from the Patent-Law Offices of Norman T. Whitaker, Washington, D. C., from whom copies may be obtained for fifteen cents in stamps.

Floyd L. Scott, of Buffalo, N. Y., a Camera-Operating Device. The inventor claims substantially as follows: An operating-device for a camera, having its shutter-mechanism provided with a trigger having an L-shaped outer end, comprising a clip provided at its opposite ends with right-and-left hand L-shaped sockets, one or the other of which is adapted to receive the L-shaped outer end of said trigger, and a timing-device connected with said clip. The number of this patent is 1,205,486.

Patent No. 1,204,098, for a Photographic Duplicating- and Enlarging-Apparatus, has been granted to George R. Watson, of Portland, Ore. Patentee claims as follows: In a reproducing-apparatus, the combination of a case having an exposure-opening; a removable slide covering the latter and having a supplemental-exposure opening; a removable slide covering the latter and having a supplemental-exposure opening controlling the area exposed; means for moving a ribbon having a sensitized surface across said exposure opening of the case, and a removable roller over which said ribbon is drawn by said moving means, such roller being provided with means to mark on said ribbon the dividing-line between the adjacent-exposed areas.

A Photographic Roll-Holder has been patented as No. 1,204,011, by John S. Greene, of Rochester, N. Y. The gist of the inventor's claims is as follows: In a roll-holder for photographic cameras, the combination, with a box or casing, of two relatively spaced flanged rollers arranged therein at each end near the bottom thereof; a film-spool arranged in the casing, and having the rims or edges of its end-flanges resting upon the rollers, to revolubly sustain a roll of film wound on the spool by revolving against the rollers as the film is drawn off; said rollers being so arranged as to position the spool with its flanges out of contact with the bottom-wall and the two side-walls of the casing, and protuberances on the end-walls of the casing engaging the end-faces of the flanges of the spools to hold them in position on the rollers.

Ernest C. Scudder, of Farmington, Ill., a Photographic Printing-Frame, which he claims as new, is substantially as follows: A photographic printing-frame comprising a base, a cover hinged thereto, means to secure a sheet of sensitized paper to the base, a negative carrying-frame movably mounted on the cover, and means for moving said frame to dispose the latter in different positions with respect to the paper to be printed. Number of this patent is 1,203,917.

A Photographic Apparatus, by Henry J. Gaisman, of New York, N. Y. The number of this patent is 1,203,603. The inventor claims, as his invention, a camera provided with an opening to permit the production of designating against a contained sensitized element, and a protecting member, carried by the camera, and movable relatively thereto, parallel with the plane of the camera-wall, said protecting member being adapted to cover and expose said opening in different positions of adjustment of said member, with means to retain said member over said opening for excluding light therefrom. Mr. Gaisman has assigned his rights to the Eastman Kodak Company, of Rochester, N. Y., a corporation of New York State.

Patent No. 1,205,039, for a Film-Cleaner, has been patented by James E. Singleton, and Samuel T. White, of Greenville, N. C. The gist of the inventor's claims is as follows: A film-cleaner, comprising a pad-holder having upper and lower members, between which the film is drawn; said members having inclined-confronting surfaces which are farther apart at their edges than at their intermediate portions, whereby they are adapted to grip the intermediate part only of the film, and permit the edges of the film to pass freely there between, and means to secure a flexible strip or pad upon each of said surfaces.

Marcus C. Hopkins, of Jersey City, N. J., a Motion-Picture Apparatus. What the inventor claims as new is substantially as follows: In a motion-picture apparatus, the combination with a film-feed of two oppositely rotating transparent polygonal refracting bodies, each having an even number of faces and disposed upon opposite sides of the film; substantially as described. Number of patent is 1,204,771.

A Motion-Picture Screen, and Process for Making the Same, has been patented by Axel T. Jacobsson, of Milwaukee, Wis., and patented as No. 1,204,775. The inventor claims substantially as follows: A screen for exhibiting motion-pictures, consisting of a piece of fabric coated with pyrolin and a filler to form a flexible fireproof backing, said backing having an adhesive dressing applied thereto; and a layer of small glass pearls partially embedded in said dressing.

Patent No. 1,204,506, for an Automatic Camera-Trip, by Frederick W. Smising, of Detroit, Mich. The gist of the inventor's claims is as follows: A device of the class described, having an automatic tripping-device for cameras, an attachment for said device comprising clamping-arms adapted for attachment to said device, and jaws carried by said arms and adapted to embrace a portion of the camera-button, to hold said device in longitudinal alignment with said camera-button.

Adolph F. Gall, of West Orange, N. J., has invented, as No. 1,204,425, a Lens-Supporting Device. The inventor claims a lens-supporting device, comprising a support, an arm mounted on said support, a lens-carrying element, means to support said lens-carrying element from said arm comprising a member, adjustably secured to said arm for sliding movement in one direction with respect thereto, and means to adjust said arm on said support in a direction parallel to the direction of the sliding movement of said member, substantially as described. The inventor has assigned his rights, by mesne assignments, to New Jersey Patent Company, West Orange, N. J., a corporation of New Jersey.

To Photo-Era Readers

THE Publisher earnestly requests the readers of PHOTO-ERA to give the preference of their patronage to goods and wants advertised in PHOTO-ERA; for no advertisement, whether large or small, is accepted unless it is trustworthy in every respect.

XUM

LONDON LETTER

THE members of the Linked Ring are again to be congratulated on the all-around success of the Salon and its results. The Red Cross has come in for quite a good amount, as without exception every exhibitor agreed to give half of the selling-price of his pictures, and the sales this year beat the record.

The pictures with a patriotic tendency were the best sellers. Mr. Mortimer's, which belonged to this class, were all sold, and duplicates of each as well. Child-studies were also favorites this year, to judge by the little red "sold" labels; and one of our own, called "Four Children in War-Time," was sold four times over. It was one of a series we had done for an American journal, to give a little picture of the kind of life many of our English children lead nowadays.

A case of one photographic literary man buying the work of a fellow photographer-writer was recorded in the sale of Mr. Filson-Young's very clever parody of Whistler's well-known portrait of Carlisle to Mr. G. Bernard Shaw. Mr. Max Beerbohm poses as the sage, and his expression — protesting, yet amused — is the point of the joke.

In this third year of the war, this Salon has not only exceeded any previous Salon in the matter of entries, but the attendances and sales have been better than many of the best years in the past. It is a remarkable triumph, when one remembers that not only are the German and Austrian exhibits missing, but it is not so easy as in peace-time to get work from neutral countries. From a most reliable source — almost the fountain-head — we learn that the Salon's financial position is so strong that already next year's show is assured.

It would be interesting to know what has become of those dissatisfied spirits that broke away and founded themselves into a society called the London Secessionists. Nowadays, their name is not even known; but at one time they were a concrete enough body to hold an interesting little exhibition. It always seems a little sad when a secession fizzles out; still, as the Salon itself is a secession, perhaps it is not yet ripe for further splitting up.

Much interest has been aroused by and in the notable medical discovery of a new way of taking photographs of internal organs. This is the work of one James Shearer, at present a sergeant in the R. A. M. C., employed at a casualty clearing station in France. He is a Scotsman by birth, but received his education in the United States, where he graduated an M.D., Ch.M., at the university at Washington. He asserts that it is possible, in broad daylight, to take detailed pictures of any organ of the body, even the brain, kidneys, liver or spleen, and to see at a glance where they are deranged. In describing the invention the *British Medical Journal* says:

"The process of producing these pictures is not impressive. There is no darkening of rooms, no flashing of lights and no crackling of spark-gaps. In fact, the whole proceeding is so brief, and seemingly so simple, that when the results are observed the first sensation is one of bewilderment. A patient is laid on a plain deal table (insulated by standing it on glass), a little clicking is heard in a cupboard hard by, and after sixty seconds or so the bearers are directed to move him. Nothing has been felt by the patient, little or nothing has been seen by the bystanders beyond what has been noted, yet a visible record of the outline of a living organ has been conveyed to a wax sheet."

If the facts can be substantiated, the result will be a simplification of the whole technique of X-ray work, and obviously a more accurate diagnosis. When we realize the enormous number of clever young medical men who have joined the army in their professional capacity, and are at the present moment having an unlimited amount of practice, the wonder seems to be that more startling discoveries of this description do not come to light.

The Secretary of the War Office has published the following notice relating to the sending of photographs to neutral or enemy countries:

"Pictorial illustrations and photographs of all kinds, whether on postcards addressed to neutral or enemy countries, or enclosed in letters so addressed, and whether the illustration itself does or does not represent an object of interest to the enemy, will in future be stopped by the Military Censor, except . . . "

This sounds fairly drastic; but the exceptions which are given under three headings, and are too long to include in these notes, make the sending of all legitimate illustrations or photographs, if carried out in the proper way, comparatively easy. For instance, photographs enclosed in letters or other postal packets by persons or firms who have occasion, in the ordinary course of their business, to despatch such articles to their agents or customers in neutral countries, can send them as usual; but, after being addressed and stamped in the usual way, they must enclose the packet in an outer cover, which need not be stamped, addressed to the Chief Postal Censor, Strand House, London, and after being inspected and found harmless, will be forwarded by him to their destination.

The kinematograph is steadily pushing deeper into our lives. We have had much controversy lately in the papers as to its injurious effect on the young when the wrong sort of stories are told, and pictures shown. Now it is to be enlisted on the side of morality, and at the Philharmonic Hall a private exhibition has lately been given of a film entitled, "Where are my children?" which is a social photo-drama dealing with some of the causes and effects of the declining birth-rate. The film is produced in Great Britain with the general approval of the National Council of Public Morals, on condition that it be exhibited to adult audiences only and in special halls. So here we have the National Council recognizing and using the kinematograph as a means to promote its object, which is the spiritual, moral and physical regeneration of the race. There is bound to be adverse criticism; but this new departure certainly opens the door to further and extensive developments of an elevating character; and if it is true, as so often stated in print, that many young people are demoralized by the "movies," we shall at least have the satisfaction to know that there is a beneficent as well as a malign side to the picture-palaces, which may ultimately counterbalance the harm done.

The films of the Somme Advance have probably been shown in nearly every "cinema" hall in this country. As we write, they are on view in our own Kentish village, and all the village is flocking to see them. They may certainly be classed among the educative films, for it is good that stay-at-homes should be shown something of what the front in France is like, and here we get at times a suggestion of the mud and dreariness of it all; and the indomitable spirit of our men is shown, where the Hampshires are moving up to the front, a limitless procession, winding along a flat road. We have no knowledge of how far these films are posed. Now and again the photographer within us is sure, by certain little things, that a particular picture is faked.

CARINE AND WILL CADBY.

An Examination

CURIOSITY, say the scientists and the psychologists, is the most prevalent characteristic of the human race. On it depend, and from it take their source, all learning, all science and all invention. The great inventors are the curious ones. On curiosity depends all advance; nothing stays still. Therefore, I am going to try to set down here some things that I have found out from reading and from practice. If I could tell every one how to *know* photography, it would do a great deal more good than instruction-books. Don't learn from instructions; learn from science. Know *why*.

How many of our "promiscuous snapshooters" know that, once taken, nothing short of a tack-hammer ruins a plate *irreparably*? How many of our learned authors who preach the antipathy of developer to the thiosulphate-bath know that a plate may be totally cleared and yet so intensified that a good print may be made from it?

The general impression is that it is the combination of light and developer that reduces the silver. It is the light that reduces it; the developer merely so intensifies it that the eye can see the silver ions. Although invisible before, they were none the less present. Sodium thiosulphate may be introduced into the developer with the result that the unreduced (by light) silver bromide will be dissolved and carried to the reduced silver, virtually silverplating the ions. This combines the processes of intensification and fixing.

Without a doubt, you have either made or seen a carbon print, a gum print or any other of the innumerable processes in which the properties of bichromated colloids are made use of. So has every one else; but how many persons would be able to place the cause of their strange insolubility to oxidation?

Study photography, not as a process, but as a science. Some professors place it at the head of the list of useful sciences; but all remark on its slow advance. One cannot be a competent photographer without a knowledge of chemistry and optics. Understand your lens. At least, be *able* to compound your own formulæ; even know the source of your chemicals. You will get more from your camera if you do.

It has been said that technically — even, to a measure, artistically — the all-important components of a perfect picture lie in the lens and in the darkroom. Know, therefore, your lens and your chemicals.

What do you know about the source of those little packages that you dissolve with such abandon? How many of these questions can you answer?

From what, and how, is pyro made?

How is sodium thiosulphate, your commonest chemical, made?

Given the apparatus and chemicals (what are they?), could you make a dryplate?

What becomes of the elements contained in the emulsion, after exposure? What are they?

What does sodium carbonate find a use in? Why?

If sodium sulphite, alone, will "develop," what is the use of metol, ortol, hydrochinon, pyro, etc.?

Why is the emulsion heated before coating?

Why could n't a wetplate be used dry? Why were wetplates slower?

Why does a plate, sufficiently overexposed, develop positive instead of negative?

Can you explain the action of a sepia redeveloper?

Why does potassium ferricyanide reduce, and what part does the thiosulphate play in the reduction?

Do you pass? These questions are simple, but they go right back to the epoch-making discoveries that have made for speed and for convenience in amateur and professional photography alike. A hundred years ago half of them could n't be answered at all and the others only by learned men. To-day, they are within the reach of every man with enough money to own a camera, and it is not fair to yourself not to take advantage of it. Think it over.

D. V. THOMPSON, JR.

The High Price of Paper

H. J. Westerman

THE young lady across the way says that with the price of paper so high it must be awfully annoying to the newspapers to have to give up so much space to advertisements.—*Boston Traveler*.

Each of us photographic publishers earnestly wishes that he might have more of those space-filling advertisements.

A Retouching-Note

WHEN sharpening a pencil for retouching purposes, the wood should be cut to a very much longer taper than is ever seen in the ordinary course; in fact, at least two inches of the total length of the pencil should be tapered, so that the eye is guided to the point, and this can be put down upon the exact place where it is required. The lead should be tapered as well as the wood. This may be done at first with the knife, following up this by rubbing on a piece of very fine glass paper, and giving a finishing rub upon a piece of smooth writing-paper. By the use of loose leads and a magazine-pencil, most of the trouble of sharpening can be avoided; but the necessity of getting the lead to a fine point and maintaining this will remain. Having taken the trouble to give the pencil the required form, one will do well to keep it for that particular purpose only, and when it is not in use to keep it where it will not be likely to be pressed into ordinary service.

L. B. WELLS.

Burnishing Prints To Give Them a Good Surface

BURNISHING a print is not often practised by the amateur, but it is a simple way to give a mounted glossy print a good finish. As a burnisher is often confused with a hot roller, it may be well to point out that, in burnishing, a roughened roller drags the print face downwards over a highly polished heated steel bar; whereas in hot-rolling the print is passed between two heated polished rollers. Burnishing gives a much higher gloss.

Care must be taken to keep the bar of the burnisher bright and free of scratches. Should it get scratched, it must be repolished, first with very fine emery paper, and then with emery and rouge. This is a lengthy process. It is much easier to see that the bar is kept right from the first. It should be stored where it will not get rusty, wiped before being put away, with a cloth with a trace of oil on it, and wiped before use with a clean cloth.

Prints to be burnished should not have their mountant absolutely dry, but they should not be perceptibly damp. If they cannot be burnished the day they are mounted, they may be put away in a pile, with a clean piece of blotting paper between each pair. They will then be in a fit condition the next day.

The surface of the print needs lubrication. Twenty grains of Castile soap, cut into shreds and dissolved in four ounces of methylated spirit, make a suitable lubricant, which will keep any length of time in a well-corked bottle. A few drops of this are put on a clean rag and rubbed over the face of the prints in succession. By the time half a dozen have been done, the first will be ready for burnishing. Each print should be passed through the burnisher three or four times in succession. It should be bent back a little while putting it through, so that its face is somewhat convex, and it will then come out quite flat. There should be no pause in the passage of the print over the bar, or a mark will be left.—*Photography.*

Sorting and Storing Bottles for Photographic Work

THE photographer who is also a practical economist will find it a good plan to examine carefully all bottles which pass through his hands, and to keep all that are likely to be of any service in connection with his photographic activities. The bottles to be kept should be thoroughly cleansed, dried and then classified according to shape and size. Bottles having comparatively wide open tops, and varying in capacity from one to four ounces, are particularly useful for chemicals in the form of crystals or powder. Small bottles with narrow necks are worth saving for small quantities of solution; they can also be converted very easily into "drip" bottles — a valuable adjunct to any darkroom equipment. Special bottles of green or blue glass, and either hexagonal or octagonal in shape, should be reserved for acids and for solutions of a poisonous character. The go-ahead camera-man of the present day often needs to purchase comparatively small quantities of chemicals, either for experimental purposes or for special work. In such circumstances a good stock of clean, ready-for-service bottles, from which one of the exact size required can be selected instantly, will not only prove to be a source of gratification to the owner (by preventing confusion and loss of time), but will save the twopence, threepence or fourpence — as the case may be — which the photographic dealer, in view of the prevailing restricted output of all kinds of glassware, will be well justified to charge. For a long time past, it has been the practice in the writer's household, before any bottle, jar or other receptacle has been finally disposed of as apparently of no further value, to submit it to him, with the question, "Is this of any use to you for your photographic work?" The practical value of this simple domestic courtesy has been amply confirmed in practice, and the plan is accordingly commended with confidence to the attention of other workers.

F. H. B. S., in *The Amateur Photographer.*

Geological Survey-Maps

THE extent of the serious and accurate work that is being done in the various industrial and scientific departments of the United States Government, at Washington, is not known to the general public; and this, despite the fact that this work is carried on at great public expense, by skilled experts, and for the sole benefit of the people. One of the most valuable of these governmental activities is the Geological Survey, of which George Otis Smith is director. Among the other important charts or maps of various kinds produced there, are those showing the topographical character of every state in the Union. They are prepared with the utmost scientific accuracy and technical skill, and are supplied at a merely nominal price to the public — on application, or through the general bookstores. Of great convenience to persons interested to know the surface-character of a certain region, including tourists, automobilists and camerists, are the sectional maps, in quadrangular form, of the various states. The larger the geographical area of a state, the greater the number of these sectional maps.

Thus, the State of Massachusetts has 54, Connecticut, 41, and Maine, 54, although, like many of the larger states, Maine has not yet been entirely surveyed; but as soon as a new section has been completed, a corresponding sectional map will be issued by the department. Of the New England states, the section maps of Massachusetts, Rhode Island and Connecticut are completed. In each of these quadrangular maps the searcher will find, plainly indicated, every elevation from the highest to the lowest, together with its height in figures, all the principal streams, lakes and ponds, and every railway and carriage-road.

The maps vary in scale. Most of them are about 1 mile to the inch. These include about 220 square miles. Others are 2 miles to the inch, including about 440 square miles, and some of the western maps are 4 miles to the inch, or about 900 square miles.

Any standard map, measuring 13 x 17½ inches, can be purchased at almost any first-class bookstore for fifteen cents, or will be forwarded, safely encased in a stout pasteboard tube, and postpaid by Uncle Sam, on receipt of ten cents in stamps or United States money-order. The valuable service thus rendered to the people of this country by the Geological Survey merits sincere appreciation, and as the Publisher of PHOTO-ERA has had occasion to procure a number of these sectional maps of the State of New Hampshire, which he has found extremely useful and accurate, he regards it as his duty to bring the matter to the attention of his readers.

The Resourceful Waiter

Luncheoner (*photographer*) — "Look here, waiter, I'm very sorry, but I've only just sufficient money with me to pay the bill, and nothing left for a tip for you."

Waiter (*confidentially*) — "Would you mind just letting me 'ave another look at the bill, sir?"

London Mail.